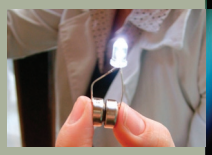
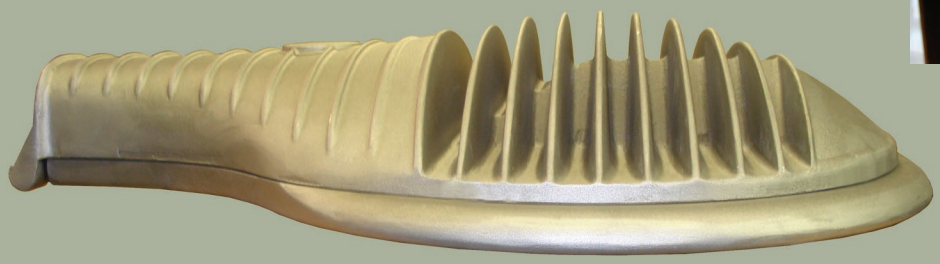
NILAND/ LED

Leading the Way For Solid State Street Lighting





Solid State Lighting

Reliability. Longevity. Savings.

Manufacturing Americas Finest Outdoor Lighting Products Since 1972

Niland COMPANY

OUTDOOR LIGHTING SPECIALISTS SINCE 1972

320 N Clark Drive · El Paso, TX 79905

ph:(800)648-9013 toll free fx:(888)779-3065 toll free

What?

LED is the most common abbreviation for a light-emitting diode but is also known as solid-state lighting (SSL). Each LED consists of a semi conductor diode that emits light when a voltage is applied to it. Traditionally, LEDs have been used as indicator lights for multiple electronic devices. More recently, solid-state lighting technology has developed to the point where it is viable for general lighting operations.

Outperforming HIDs

LED's offering bright white lights have the advantage of minimal lumen depreciation, better visual acuity and high lumens per watt. LED technology has a vastly longer lifespan than traditional lamp sources. These units can easily replace commonly used HID fixtures. LED luminaires are also more environmentally friendly in that they contain no mercury, last longer and are virtually maintenance free.

UP TO 68% ELECTRICAL SAVINGS

COMPARED TO CONVENTIONAL HPS & MH

Niland LED street light luminaires are designed to replace high pressure sodium and metal halide lamps in nearly any desired fixture style.

Energy efficient, maintenance free and easy to install, Niland LED street light luminaires use approximately ±50% less electricity than traditional high pressure sodium or metal halide lamps. In addition, Niland LED panels and potted drivers have a service life of up to **30 years**!

Utilizing Niland LED's universal power supply and circuit board designs, the Niland LED street light luminaires have a variable input voltage of 90 to 305VAC (optional 480VAC) and a total light output of up to 7000 lumens. Niland LEDs' circuitry will recognize and adapt to **ANY** input voltage.

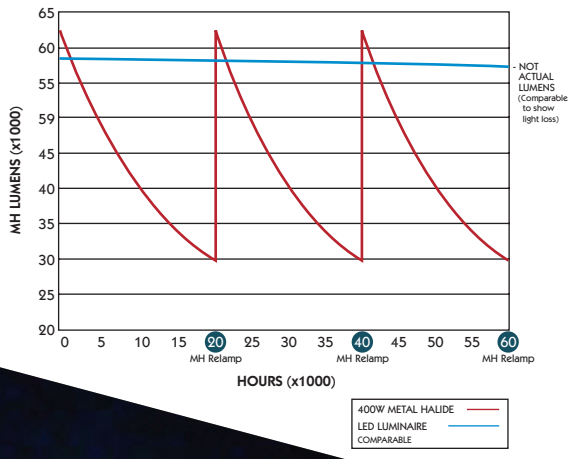
The ability to retrofit existing street light fixtures with cost effective and energy efficient LEDs is an economical advantage for both the government and private industries. When you compare the combined electrical requirements of a 250 watt high pressure sodium lamp and ballast to the low wattage required by the Niland LED driver, the maintenance and electrical savings are immediate.

Longevity

Unlike more traditional light sources, LEDs normally don't "burn out" but instead progressively dim over time. Only Niland LEDs are controlled to deliver nearly **0% light loss** factor with programming the high power LEDs to use 70% of it's intended power. Once light loss begins, power is gradually added to maintain the nearly 0% loss factor.

Niland LEDs, combined with an enhanced thermal management design, offer a useful life that may reach up to **100,000 hours**.

The graph below demonstrates the average delivered lumens over the course of 60,000 hours between Niland LEDs and a 400 watt Metal Halide lamp. Niland LEDs have a significantly better lumen maintenance and a more efficient driver.



ALL LED PRODUCTS MANUFACTURED IN THE UNITED STATES.

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FEATURES & BENFITS

- MADE IN THE USA -

Increased Visual Acuity
White LEDs provide a clear, crisp daylight look for ultimate visibility.

Minimal Energy Consumption
Each unit consumes approximately 1/2 or more of the electrical power of traditional HID lighting. Additional savings are achieved with less lumens per watt needed.

Decreased Maintenance
Today's downsized workforce still have the same workloads to accomplish the same results. Niland LED technology drastically reduces maintenance normally required with traditional lighting systems. HPS and MH lamps have an average life of 4-6 years. Our LED system is rated for up to 30 years of maintenance free service.

Going Green
With out the use of mercury and coupled with a long lifespan, Niland LED fixtures reduce the amount of waste associated with many traditional lighting systems. Niland LED units are also lead free and RoHS compliant.

Dark Sky Friendly
Producing minimal to zero light pollution above the horizontal plane, Niland LED fixtures are dark sky friendly. By pointing our LEDs directly to the ground, qualifies these units as full cut-off.

Bulb Free
LED's contain no arc tube or bulb, and each unit is vibration and impact resistant.

IP65 RATED LED CHAMBERS
Niland LED full cut-off units also come standard with IP65 rated gaskets for the LED chambers.

Instant "ON"
No re-strike delay or cold starting. Additional savings can be achieved with the use of motion detectors. Our ability to run our units at 30% until a motion sensor activates the units to full power, saves you even more.

HIGHEST THERMAL PROTECTION RATING IN THE INDUSTRY

Only Niland heat sinks are over engineered to dissipate the heat generated by Niland LEDs quickly and efficiently.
Thermal management is the only way to guarantee LED longevity.

RoHS compliant
This light source meets restrictions on hazardous substances.

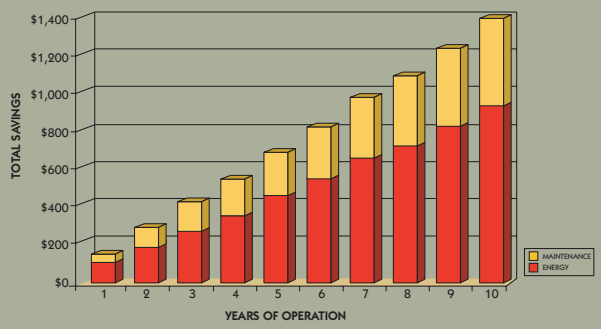
CLASSIFIED c UL us

As shown above, LED CRI(up to 80) is much higher than the HPS(30) and allows for more crisp visibility.

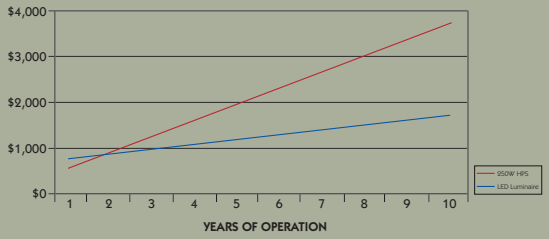
Typical Savings

The graph and table to the right show the savings per street light over a ten-year period when comparing Niland LED street light luminaires to standard high pressure sodium street lighting lamps.

Typical Savings for LED Luminaires



Cost of Ownership and Operation; HPS vs. LED



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UP TO 68% ENERGY SAVINGS

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RETROFIT UNITS

Color Rendition Index

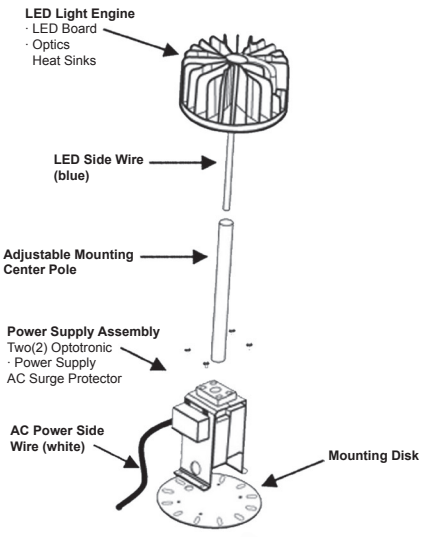
CRI of up to 80, the highest in the industry when compared to HPS(20-25) and MH(65-70). After 40 years, the human visual sensitivity for yellow light diminishes. Niland LED panels are offered with a bright white light that will sustain visibility significantly beyond that of high pressure sodium and metal halide by utilizing individual LEDs with up to 6500K Rating.

Post Top LED Retrofit

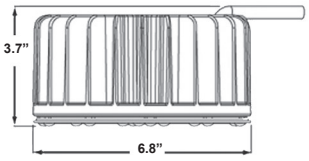
Lighting Distribution: Type V
(short or medium)

30ft Maximum Height
Up to 175 Watt Equivalent

UP TO 68% Electricity Savings

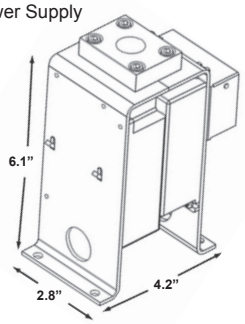


Light Engine



OSRAM SYLVANIA INSIDE
Quick 60 Month Limited Warranty on Parts and Labor

Power Supply



LED Panels

All electrical componenets and materials shall be UL-recognized and wired by a certified UL technician. The elctrical assembly is prewired with quick disconnects for easy installation. AC surege protector and Optotronic power supplies are prewired. LED unit reduces energy consumption up to 70%. LED driver shall be rated a full load with less than 20% THD and greater than 0.9 power factor.

LED Power Supply

Voltage Range: 120 - 277V AC
Power Factor: PF0.95/120VAC
Efficacy (lm/W): 62 - 64
Typical Lumens: 3,500 - 3,400

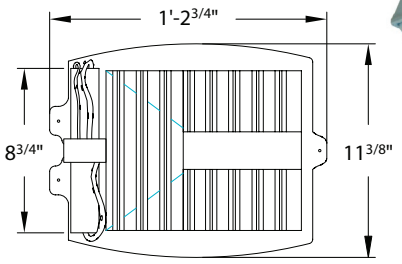
Wattage Range: 54W - 59W
Optional Kelvins: 5000K or 5700K
Optional CRI: 70 or 75
Operating Temperature: -30C to 40C

Roadway Retrofit or Complete Unit

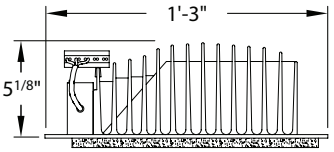
Lighting Distribution: Type II, III or V
IP65 Rates LED Chamber

40ft Maximum Height
(90 Individual LEDs)
Up to 250 Watt Equivalent

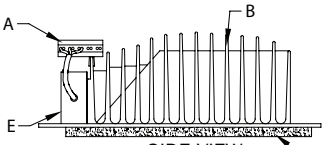
UP TO 62% Electricity Savings



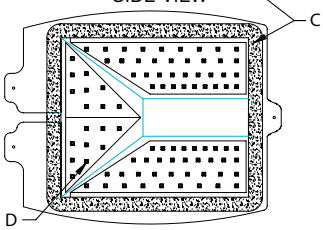
TOP VIEW



SIDE VIEW



SIDE VIEW



BOTTOM VIEW

(A) Quick disconnect terminal block

(B) Aluminum heat sink with heat transfer ceramic coating

(C) Felt gasket, IP65 rated chamber

(D) 90 Individual high power CREE XPG LEDs in angled panel design

(E) Intelligent power supply with wattage adjustment port (factory preset)

LED Panels

90 individual, CREE XPG LED's rated for up to 100,000 hours service life. 5000 Kelvin white LED's are standard with a CRI of 72, 3500 Kelvins "warm white" LED's are optional.

LED Power Supply

Voltage Range: 90 - 305VAC
Frequency Range: 47 - 63Hz
Power Factor: PF0.95/230VAC
Efficiency: 90% - 94%
AC Current: 4A/115VAC ; 2A/230VAC
Inrush Current: Cold Start 75A/230VAC
Leakage Current: <0.75mA/277VAC

Min/Max Working Temp: -30/+60°C
Wattage Range: 25 - 150 watts
Protections: short circuit, overload, over voltage and over temperature
Built-in Active PFC function
OCP point adjustable through output cable or internal potential meter

All LED units are equipped with Multiple Circuit, Surge and Temperature Protections. Please contact manufacturer for full details.

RoHS compliant
This light source meets restrictions on hazardous substances.

CLASSIFIED c UL us

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UP TO 62% ENERGY SAVINGS

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COMPLETE UNITS

Color Rendition Index

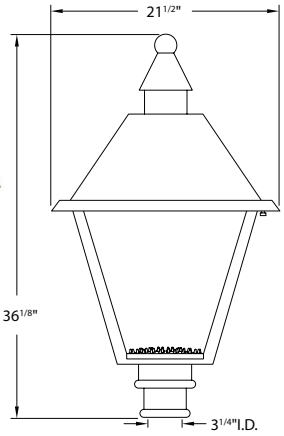
CRI of up to 80, the highest in the industry when compared to HPS(20-25) and MH(65-70). After 40 years, the human visual sensitivity for yellow light diminishes. Niland LED panels are offered with a bright white light that will sustain visibility significantly beyond that of high pressure sodium and metal halide by utilizing individual LEDs with up to 6500K Rating.

Complete units from our Twilight Series offer full cut-off options with competitive distribution types.

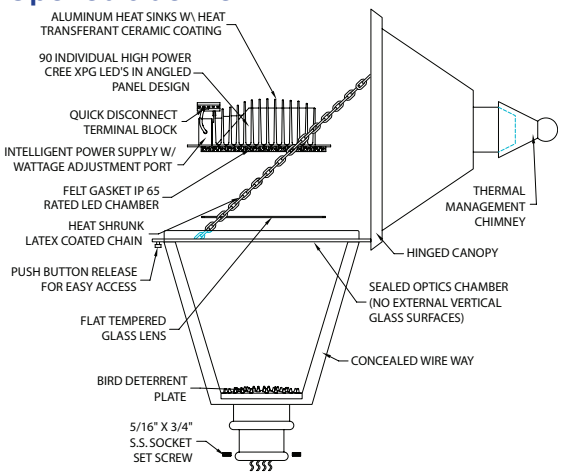
Twilight Series LED Complete Units

Lighting Distribution: Type II, III or V
(90 Individual LEDs)

Jamestown LED (JT-LED)



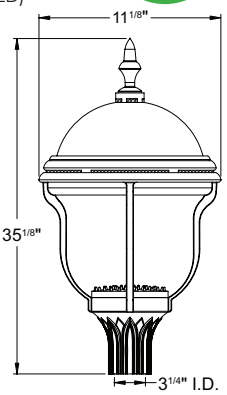
Opened Side View



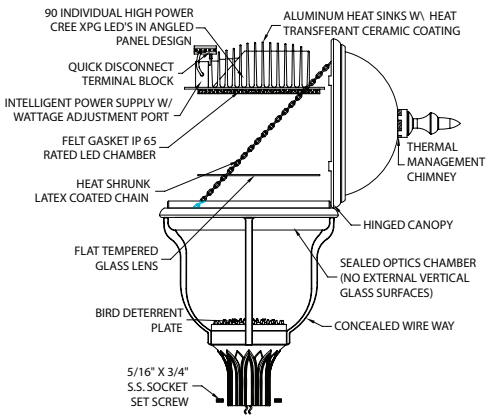
Up to 250 Watt Equivalent
IP65 Rates LED Chamber

UP TO 62% Electricity Savings

Barcelona LED (BA-CON-LED)



Opened Side View

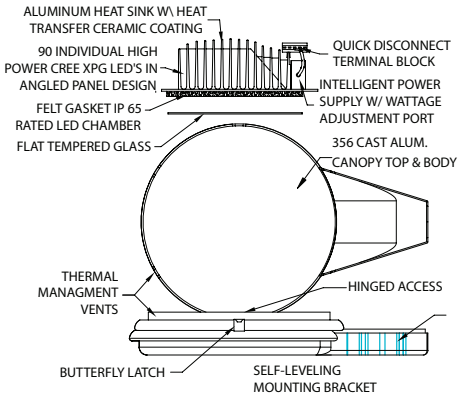


New Yorker Roadway LED

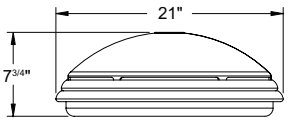
Lighting Distribution: Type II, III or V
(90 Individual LEDs)
Up to 250 Watt Equivalent

UP TO 62% Electricity Savings

Opened Side View

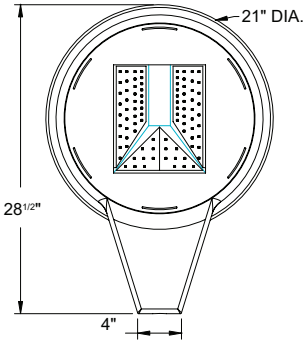


Front View



FRONT VIEW

Bottom View



BOTTOM VIEW

Niland LEDs are offered with 5000K as a standard light temperature. 3500K are available upon request.

Additional Luminaires From The Twilight Series:

Photometric data available upon request.

BA-CON-J-LED | BA-CON-T-LED | BA-PEN-LED | BC-17-LED | RS-BC-26-LED | SZ-20-LED | AP-LED

Below is a comparison image to show the optional Kelvins Niland LEDs offer.

3500K on High Setting | 5000K on High Setting

Automatic voltage recognition from 90 to 305 VAC. Optional 480VAC.
Soft start ramp up coupled with the industries highest rated heat sinks for thermal control rate these products for up to 30 years of service-free life.
All LED units are equipped with Multiple Circuit, Surge and Temperature Protections. Please contact manufacturer for full details.

RoHS compliant
This light source meets restrictions on hazardous substances.

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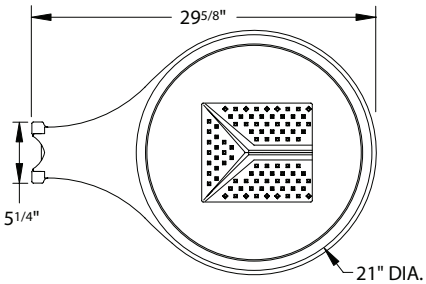
COMPLETE UNITS

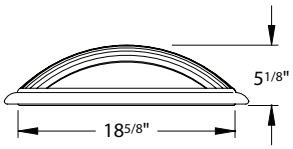
Monarch Roadway Series LED Complete Units

Catalog Name: **MON-RW-LED**

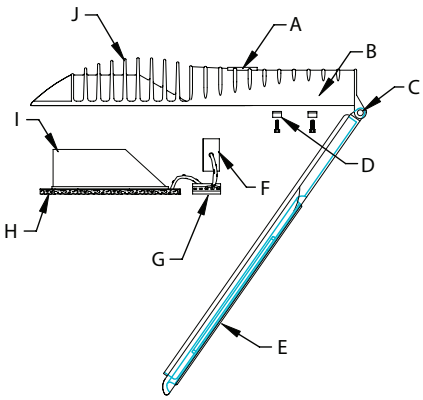
Lighting Distribution: Type II, III or V
(90 Individual LEDs)
Up to 400 Watt Equivalent
IP65 Rates LED Chamber



BOTTOM VIEW



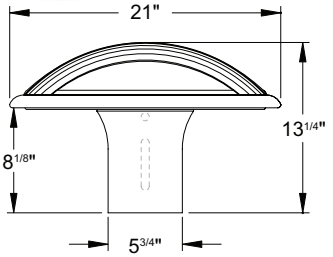
FRONT VIEW

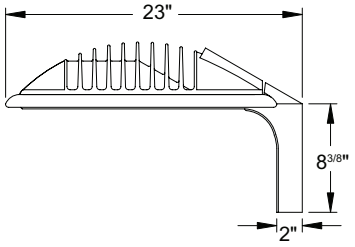


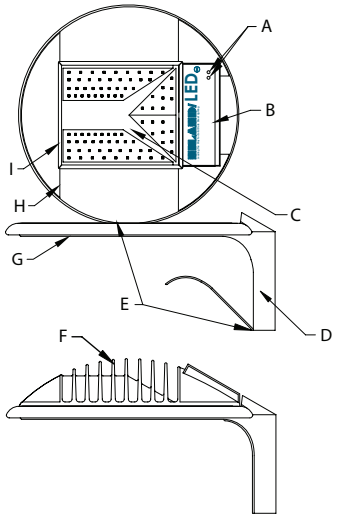
- **(A)** Twist -Lock Photocell (Optional)
- **(B)** Full Cast Aluminum Body
- **(C)** Hinged For Easy Access
- **(D)** Mounting Brackets
- **(E)** Flat Tempered Glass Lens
- **(F)** Intelligent power supply with wattage adjustment port (factory preset)
- **(G)** Quick Disconnect Bracket
- **(H)** Felt Gasket, IP65 Rated LED Chamber
- **(I)** 90 Individual high power CREE XPG LEDs in angled panel design
- **(J)** Self-Cleansing External Heat Sinks

The Monarch Series is also available as a side mount for parking lot applications.

Catalog Name: **MON-SM-LED**







- **(A)** Wattage Adjustment Ports
- **(B)** Intelligent power supply (factory preset)
- **(C)** 90 Individual high power CREE XPG LEDs in angled panel design
- **(D)** Mounting Arm
- **(E)** Hinged For Easy Access
- **(F)** Self-Cleansing External Heat Sinks
- **(G)** Flat Tempered Glass
- **(H)** Full Cast Aluminum Canopy and Body
- **(I)** Felt Gasket, IP65 Rated LED Chamber

LED Panels

Panels are directly mounted to aluminum casting. Direct mounting provides maximum heat dissipation thus adding to LED overall longevity. 90 individual, CREE XPG LED's rated for up to 100,000 hours service life. 5000 Kelvin white LED's are standard with a CRI of 72, 3500 Kelvins "warm white" LED's are optional.

LED Power Supply

Voltage Range: 90 - 305VAC
Frequency Range: 47 - 63Hz
Power Factor: PF0.95/230VAC
Efficiency: 90% - 94%
AC Current: 4A/115VAC ; 2A/230VAC

AC Current: 4A/115VAC ; 2A/230VAC
Inrush Current: Cold Start 75A/230VAC
Leakage Current: <0.75mA/277VAC
Min/Max Working Temp: -30/+60°C

Wattage Range: 25 - 200 watts
Protections: short circuit, overload, over voltage and over temperature
Built-in Active PFC function
OCP point adjustable through output cable or internal potential meter

Automatic voltage rocognition from 90 to 305 VAC. Optional 480VAC.
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RoHS compliant
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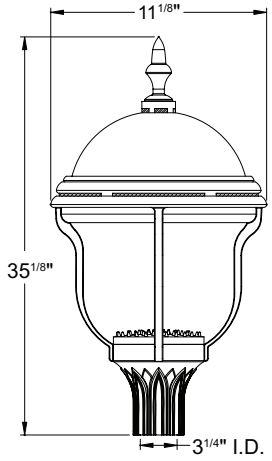
Model: BA - CON - LED

Photometric Data Based on 100WLED, 10ft mounting height.



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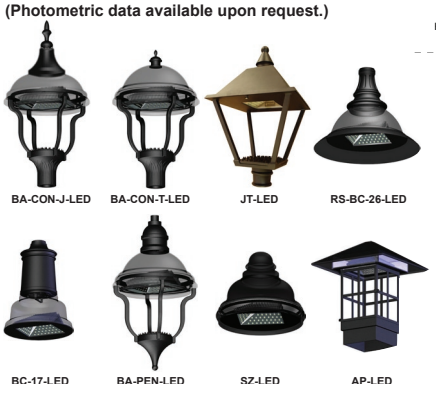
Inrush Current: Cold Start 75A/230VAC
Leakage Current: <0.75mA/277VAC
Min/Max Working Temp: -30/+60°C
Wattage Range: 25 - 150 watts
Protections: short circuit, overload, over voltage and over temperature
Built-in Active PFC function
OCP point adjustable through output cable or internal potential meter

Additional Luminaires From Twilight Series:

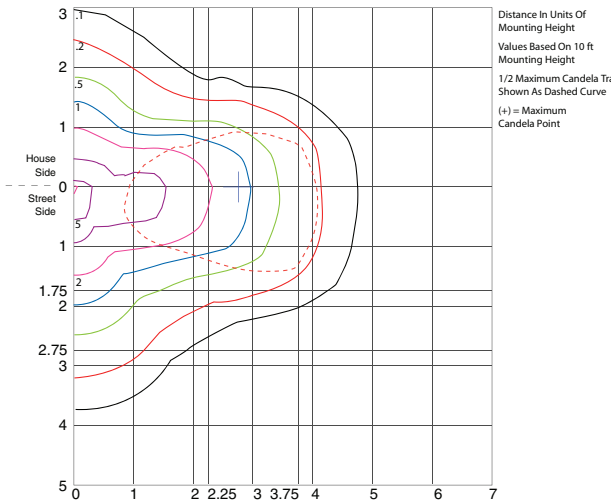
(Photometric data available upon request.)



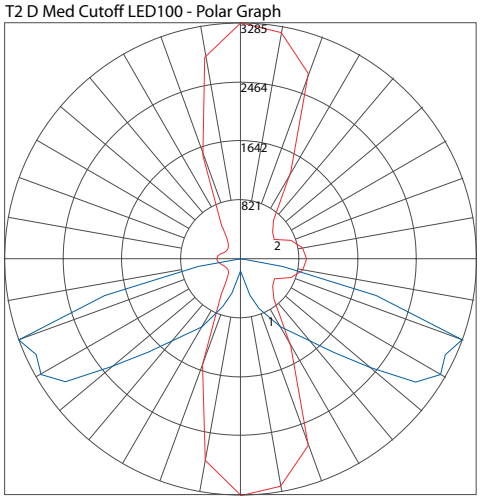
Charcteristics:

IES Classification	Type II
Longitudinal Classification	Medium
Cutoff Classification (deprecated)	Cutoff
Lumens Per Lamp	176.4 (54 lamps)
Total Lamp Lumens	9525.6
Luminaire Lumens	5282
Total Luminaire Efficiency	55%
Downward Total Efficiency	55%
Upward Waste Light Ratio	0.00
Maximum Candela	3284.817
Maximum Candela Angle	90H 70V
Maximum Candela At 90 Degrfees Vertical	3.58 (0.0% Lamp Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	635.663 (6.7% Lamp Lumens)
Total Luminaire Watts	96.89
Ballast Factor	1.00
Bug Rating	B2-U1-G2

T2 D Med Cutoff LED100 - Isofootcandle Lines of Horizontal Illuminance



T2 D Med Cutoff LED100 - Polar Graph

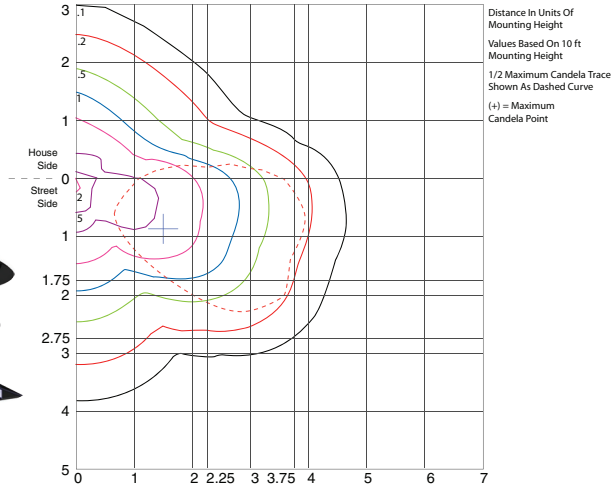


Maximum Candela = 3284.817 Located At Horizon Angle = 90, Vertical Angle = 70
1 - Vertical Plane Through Horizontal Angles (90 - 270) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (70) (Through Max Cd.)

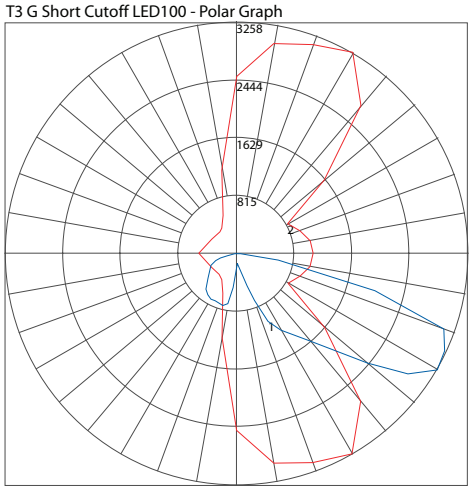
Charcteristics:

IES Classification	Type III
Longitudinal Classification	Short
Cutoff Classification (deprecated)	Cutoff
Lumens Per Lamp	176.4 (54 lamps)
Total Lamp Lumens	9525.6
Luminaire Lumens	5194
Total Luminaire Efficiency	55%
Downward Total Efficiency	54%
Upward Waste Light Ratio	0.00
Maximum Candela	3258.247
Maximum Candela Angle	60H 60V
Maximum Candela At 90 Degrfees Vertical	3.58 (0.0% Lamp Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	592.84 (6.2% Lamp Lumens)
Total Luminaire Watts	96.89
Ballast Factor	1.00
Bug Rating	B1-U1-G1

T3 G Short Cutoff LED100 - Isofootcandle Lines of Horizontal Illuminance



T3 G Short Cutoff LED100 - Polar Graph



Maximum Candela = 3284.817 Located At Horizon Angle = 90, Vertical Angle = 70
1 - Vertical Plane Through Horizontal Angles (90 - 270) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (70) (Through Max Cd.)

ALL LED PRODUCTS MANUFACTURED IN THE UNITED STATES.

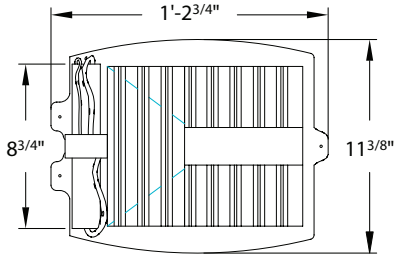
320 N. Clark Dr. El Paso, TX 79905 ph:(800)648-9013 fx:(888)779-3065 email: info@nilandco.com

UP TO 62% ENERGY SAVINGS

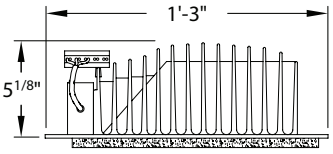
NILAND LED
Leading the Way For Solid State Street Lighting
www.nilandco.com

Model: RW - RF - LED

Photometric Data Based on 100WLED, 10ft mounting height.



TOP VIEW

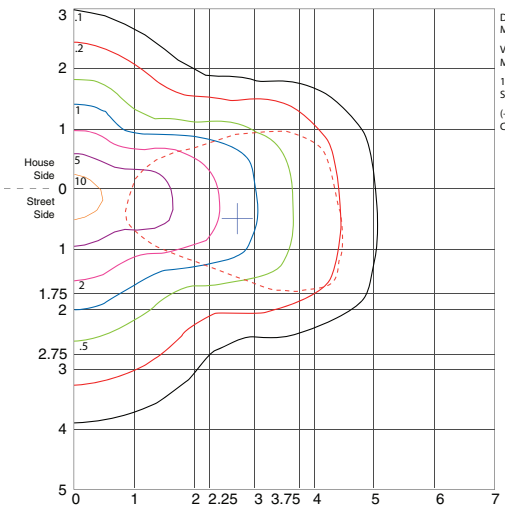


SIDE VIEW

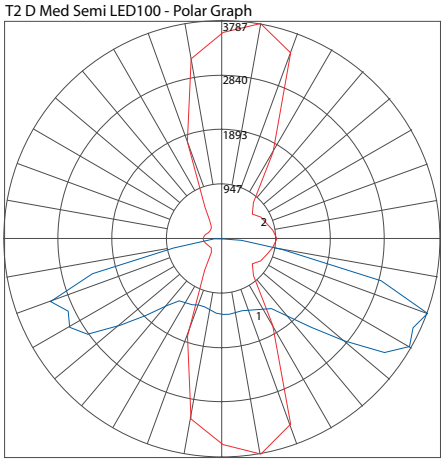
Charcteristics:

IES Classification	**Type II**
Longitudinal Classification	Medium
Cutoff Classification (deprecated)	**Semi-Cutoff**
Lumens Per Lamp	176.4 (54 lamps)
Total Lamp Lumens	**9525.6**
Luminaire Lumens	6728
Total Luminaire Efficiency	**71%**
Downward Total Efficiency	71%
Upward Waste Light Ratio	**0.00**
Maximum Candela	3786.541
Maximum Candela Angle	**80H 70V**
Maximum Candela At 90 Degrfees Vertical	19.551 (0.2% Lamp Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	**1155.368 (12.1% Lamp Lumens)**
Total Luminaire Watts	96.89
Ballast Factor	**1.00**
Bug Rating	B2-U2-G2

T2 D Med Semi LED100 - Isofootcandle Lines of Horizontal Illuminance



T2 D Med Semi LED100 - Polar Graph

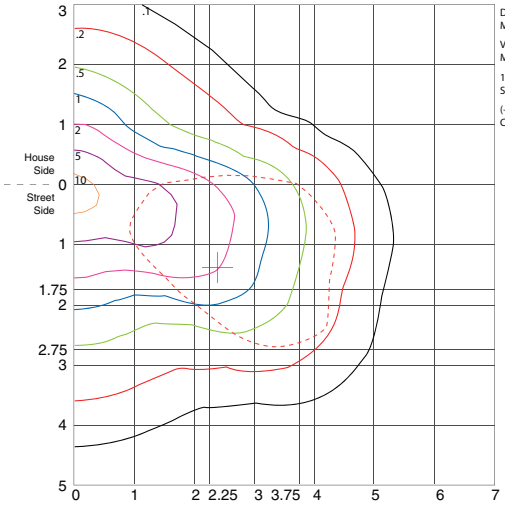


Maximum Candela = 3786.541 Located At Horizon Angle = 80, Vertical Angle = 70
1 - Vertical Plane Through Horizontal Angles (80 - 260) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (70) (Through Max Cd.)

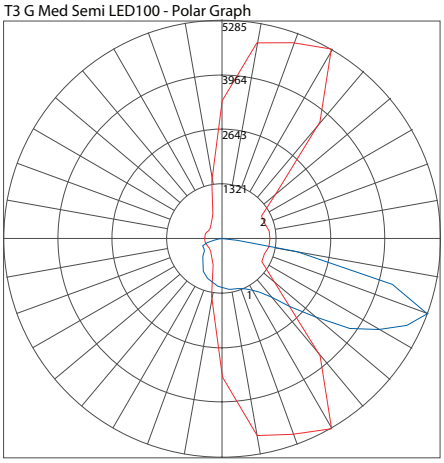
Charcteristics:

IES Classification	**Type III**
Longitudinal Classification	Medium
Cutoff Classification (deprecated)	**Semi-Cutoff**
Lumens Per Lamp	176.4 (54 lamps)
Total Lamp Lumens	**9525.6**
Luminaire Lumens	7614
Total Luminaire Efficiency	**80%**
Downward Total Efficiency	80%
Upward Waste Light Ratio	**0.00**
Maximum Candela	5285.416
Maximum Candela Angle	**60H 70V**
Maximum Candela At 90 Degrfees Vertical	19.551 (0.2% Lamp Lumens)
Maximum Candela from 80 to <90 Degrees Vertical	**1834.819 (19.3% Lamp Lumens)**
Total Luminaire Watts	96.89
Ballast Factor	**1.00**
Bug Rating	B2-U3-G2

T3 G Med Semi LED100 - Isofootcandle Lines of Horizontal Illuminance



T3 G Med Semi LED100 - Polar Graph



Maximum Candela = 5285.416 Located At Horizon Angle = 60, Vertical Angle = 70
1 - Vertical Plane Through Horizontal Angles (60 - 240) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (70) (Through Max Cd.)

LED Panels

90 individual, CREE XPG LED's rated for up to 100,000 hours service life. 5000 Kelvin white LED's are standard with a CRI of 72, 3500 Kelvins "warm white" LED's are optional.

LED Power Supply

Voltage Range: 90 - 305VAC
Frequency Range: 47 - 63Hz
Power Factor: PF0.95/230VAC
Efficiency: 90% - 94%
AC Current: 4A/115VAC ; 2A/230VAC
Inrush Current: Cold Start 75A/230VAC
Leakage Current: <0.75mA/277VAC
Min/Max Working Temp: -30/+60°C
Wattage Range: 25 - 150 watts
Protections: short circuit, overload, over voltage and over temperature
Built-in Active PFC function
OCP point adjustable through output cable or internal potential meter

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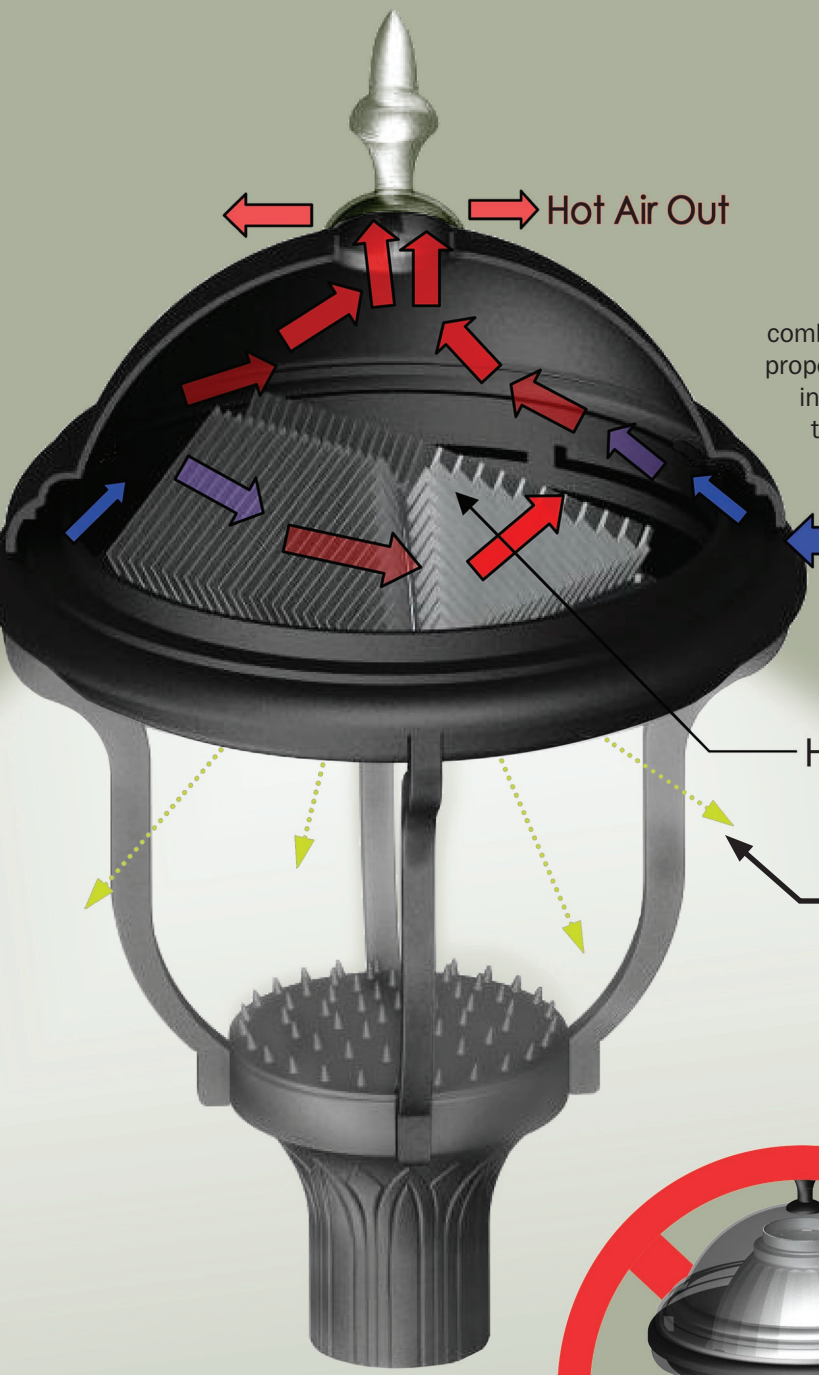
Thermal Management Key to LED Longevity



Over Engineered to Add 35% Safety Margin Factor on Niland Exclusive Heat Sinks

The heat generation rate of the entire 250W equivalent LED system is 96Watts using 90 individual 1W LEDs. The Niland Barcelona fixture is capable of minimizing the heat by combining the heat sink around the LED arrays and keeping the proper ventilation for the air flow around it. The ambient air comes in through the side vents, flows around the heat sinks (the extended metal fins around the LED panels), becomes hot after collecting the heat and exits the fixture through the upper vents right below the finial. The entire heat transfer process is done by the combination of both conduction and natural convection mode of heat transfer. The heat sink material has excellent thermal conductivity.

Directional LED's yield full cutoff light distribution in an otherwise cut off style luminaire.

Aiming of the Niland LEDs directly to the ground coupled with no reflector system means 100% efficiency! 30-40% of light output is lost in traditional reflector systems.

THE PROTOTYPE THAT NEVER WAS

Niland Companys' original prototype had been tested with LEDs pointing up into a reflector system, which proved unsuccessful. The unit lost over 46% of its light output inside the reflector. The energy savings was lost. Niland Company quickly had to change gears and realized that by pointing the LEDs to the ground, 100% efficiency is achieved.

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