

StreetSense™ Series LED Street Light for roadway and area illumination

Patent Pending



StreetSense™ LED Street Light

Features and Benefits

Patented Optics

Exclusive precision optics and unique angled mechanical design for precise light that provides minimal light while providing uniform illumination



- Uniform light distribution while delivering sharp cut-off, zero up-light
- Reflectors are precision manufactured via injection molding and coated with a highly specular optical coating via vacuum-metalization
- Precision engineered reflectors and LEDs are coupled to metal clad printed circuit board. Light engine is sealed in an optically optimized premium glass lens

- Dedicated IP66 optical cavities for LED arrays maximizes the efficacy and control of distribution from each light engine module
- Optical light engines are optimally aimed to maximize light collection and directional distribution onto the application area
- High brightness output LEDs deliver exceptional fixture efficacy (up to 92 lm/W) in a choice of three superior quality color temperatures; Cool (5000K \pm 300), Neutral (4300K \pm 300), Warm (3300K \pm 300) with a minimum CRI of 70
- Scotopic to photopic (S/P ratio) of LED is 1:1.6 for 4000K



- Lens also available in UV and abrasion resistant polycarbonate clear and frosted lens
- No UV or IR emissions
- Optional house-side shield is available to further reduce back-side light trespass in residential areas
- Anti-reflective coating on the house-side shield prevents the introduction of unwanted glair to the roadway

StreetSense™ LED Street Light

Features and Benefits

Innovative Design

Designed for new construction and easily retrofits with existing HID fixtures.

- High grade aluminum alloy A360 construction for superior strength and durability
- In contrast with horizontal or planer heat sinking systems, the deep troughs between heat sink fins are wide and angled to achieve a self-cleaning design and prevent debris build-up
- Exclusive physical design gives rise to an exceptional passive thermal management system
- Vent openings in light engine casting paired with fins are optimized for increased air flow velocity and thermal plume assuring a minimum operating temperature of the LEDs and driver



- Metal clad PCBs used in light engine are secured directly to the cast aluminum housing for superior thermal transfer and low in-situ temperature (board level temperature)
- Thermal overload protection circuitry prevent internal temperatures from reaching high levels thereby increasing long term reliability and allowing operation up to 74°C
- Rugged cast aluminum housing is subjected to a multistage (cleaning and sealing) per process AAMA 2604 and top coated with a super durable, polyester powder coated finish that is available in 5 standard colors
- Finish is resistant to blistering, excessive fading or corrosion during warranty period

- Rugged heavy gauge, 4 bolt, aluminum clamp with stainless steel hardware secures fixture to pole arm
- Adjustable pole mount connection can accommodate a 2" IP (2.375" OD) pipe with provision for adjustment of $\pm 5^\circ$ at 2.5° increments
- Unique hinged polycarbonate bottom cover provides tool-less access to terminal blocks and pole arm via a single trigger-latch for quick and easy luminaire mounting



- Terminal block sized to allow for wire gauges from #14 AWG to #6 AWG and is accessible from under side of fixture
- Salt spray tested for corrosion - 3,000 hours per ASTM B117-97
- Withstands shock & vibration to Caltrans 611 levels – 3.0G peak-to-peak, 2 million cycles
- Stainless steel, SAE, captive hardware
- Large, easy to read two axis bubble level allow installer to quickly and efficiently level fixture during installation

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Features and Benefits

Electrical

Ruggedized driver design and thermal management system ensure maximum energy efficiency and reliability



- Dialight's custom LED drivers are constant current sources well suited for the load and the particular lighting application
- Field replaceable, primary fused, output isolated drivers are fully potted and encased in an aluminum extrusion for EMI noise immunity and thermal protection
- Offering high efficiency and power factor with ultra low THD, the LED drivers incorporate overload and no load protection circuitry
- Universal inputs 100-277V AC, 50/60Hz and 347-480V AC, 50/60Hz
- LED Driver MTBF per Telcordia SR-332 – 5,10,040 hrs at 13.8C (average yearly temperature of five major cities)

- Safety grommets in casting through-holes prevent abrasions to electrical wire insulation
- Robust, integrated 6kV/6kVA or 10kV/10kVA surge protection circuitry incorporate MOVs designed to actively clamp line voltages to safe levels per ANSI/IEEE C62.41.2-2002 Cat C
- IP65 rated LED drivers



Lifetime

L70 / TM-21 Lifetime Report at 500mA – Calculated lifetime = 914,000 hrs; Reported lifetime = 60,500 hrs

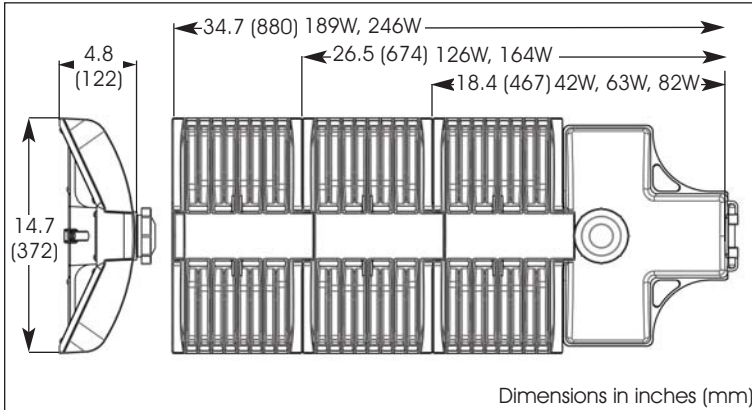


- 7 year full performance warranty with option for 10 years
- Factory burn-in (24 hr to avoid infant fatality)





StreetSense™ Series LED Street Light



Certifications and Ratings:

- UL 1598 (Suitable for Wet Locations)
- UL 8750
- UL 1012
- UL 1449
- CE
- CSA C22.2 No. 250.0-08
- IP66

Compliances:

- RP-8-00 (R2005)
- IEC 60529 (IP 66)
- ANSI 1012
- ANSI C 136.15-2011
- ANSI/IEEE C62.41.2-2002
- ANSI/NEMA/ANSLG C78.377-2008
- ANSI C136.2-2004 (R2009)
- ANSI C136.3-2005
- ANSI C136.10-2006
- ANSI C136.21-2004
- ANSI C136.25-2009/IEC 60529
- ANSI C136.31-2001
- ANSI C136.32-2006
- ANSI C136.37-2011
- ASTM B117-97
- ASTM B117 - salt spray (3000 hours)
- Conforms with CALTRANS vibration test 611 – 3G vibration (2,000,000 cycles)
- Meets ARRA requirements (must be specified when ordering)
- IDA Dark Sky
- RoHS

Test Reports:

- LM-79
- LM-80
- RP-8-00
- TM21

Accessories (ordered separately):

- Photo Controller - part number - SL-PC01R
- House side shield - part number - SL-SHIELD-KIT
- LUMITROL™ Streetlight control module (consult factory)
- ANSI Label (consult factory)

Mechanical Information

| | |
|-----------------|---|
| Fixture Weight: | 16lbs (42W, 63W, 82W) 25lbs (126W, 164W) 34lbs (189W, 246W) |
| EPA (Sq. ft): | 0.60 (42W, 63W, 82W) 0.87 (126W, 164W) 1.13 (189W, 246W) |
| Mounting: | Accommodates 1.25" (1.66" OD) - 2" (2.375" OD) 31.75mm (42.16mm OD) - 50.8mm (60.32mm OD) pipe. Provision for adjustment of +/- 5° at 2.5° increments |

Electrical Specifications

| | |
|---------------------------------|---|
| Operating Voltage: | Universal inputs 100-277VAC, 50/60Hz 347-480VAC 50/60Hz |
| Total System Power Consumption: | See ordering info on pg. 6 |
| Operating Temp: | -40°F to 165°F (-40°C to 74°C) ambient |
| Terminal Block: | #14 AWG (1.6mm) to #6 AWG (4.1mm) wire and accessible via hinged tool less entry |
| Noise Requirements / EMC: | FCC Title 47, Subpart B, Section 15, class A device. RF Immunity; 10V/m, 80MHz-1GHz |

Transient Protection

| | |
|----------------------|--|
| 100-277VAC, 50/60Hz: | Open circuit surge protection 6kV standard per ANSI/IEEE C62.41. 2.2002 cat C low or Open circuit surge protection 10kV standard per ANSI/IEEE C62.41. 2.2002 cat C high |
| 347-480VAC 50/60Hz: | Open circuit surge protection 10kV standard per ANSI/IEEE C62.41. 2.2002 cat C high |

| | |
|------|--|
| THD: | < 15% (100 - 240VAC) < 20% (277VAC) < 20% (347-480VAC) |
|------|--|

| | |
|---------------|--------|
| Power Factor: | > 0.90 |
|---------------|--------|

Material

| | |
|----------|---|
| Housing: | Die cast aluminum alloy A360 Polymeric materials UL94 V0 flame retardant materials |
| Finish: | Polyester powder coat for superior corrosion resistance Gray - RAL 7040 Bronze - RAL 7022 Green - RAL 6020 Black - RAL 9005 White - RAL 9010 |

| | |
|-------|--|
| Lens: | Abrasion and UV resistant polycarbonate Optically optimized, tempered glass |
|-------|--|

| | |
|------------------|---|
| Photo controller | |
| Socket: | Standard NEMA three prong twist lock, socket with shunting cap, as per ANSI C136.10 |

Photometric Information

| | |
|---------|--|
| CRI: | > 70 |
| CCT: | 5,000K (cool white) 4,300K (neutral white) 3,300K (warm white) |
| Optics: | IES Type II, III, IV, V |

All values typical unless otherwise stated
All lumen values are typical (tolerance +/- 10%)

StreetSense™ Series LED Street Light

Ordering Information

| S | L | - | 3 | C | 4 | C | L | G | G | _ | | | | | |
|----------|---|------------------|---|--|---|----------|---|---|---|---------------|--|------------------|--|---------------|--|
| IES Type | | CCT ¹ | | Voltage | | Wattage | | Controller | | Housing Color | | Lens | | Certification | |
| 2-II | | C-5,000K | | 4-120-277V AC 6kV surge protection | | B - 42W | | N - No photo controller receptacle | | G - Gray | | G -Glass | | Blank - UL | |
| 3-III | | N-4,300K | | 5-120-277V AC 10kV surge protection | | C - 63W | | R - Photo controller receptacle only | | B - Bronze | | H -Polycarbonate | | EU -CE | |
| 4-IV | | W-3,300K | | 7-347-480V AC 10kV surge protection | | D - 82W | | L - Shorting cap | | R - Green | | | | | |
| 5-V | | | | | | H - 126W | | I - LUMITROL™ Streetlight control module | | K - Black | | | | | |
| | | | | | | I - 164W | | | | W - White | | | | | |
| | | | | | | R - 189W | | | | | | | | | |
| | | | | | | S - 246W | | | | | | | | | |

| Part Number | Initial Fixture Lumens ¹ | Total System Power Consumption | Lumen Per Watt | Color | BUG Rating | EPA (SQ. ft) | Number of Light Engines |
|-------------|-------------------------------------|--------------------------------|----------------|---------------|------------|--------------|-------------------------|
| SL3C4BLGH | 3,800 | 42 | 90 | Cool White | B1U1G1 | 0.60 | 1 |
| SL3C4CLGH | 5,700 | 63 | 90 | Cool White | B1U2G1 | 0.60 | 1 |
| SL3C4DLGH | 6,900 | 82 | 84 | Cool White | B2U3G2 | 0.60 | 1 |
| SL3C4HLGH | 11,500 | 126 | 91 | Cool White | B2U3G2 | 0.87 | 2 |
| SL3C4ILGH | 13,750 | 164 | 84 | Cool White | B3U3G3 | 0.87 | 2 |
| SL3C4RLGH | 17,000 | 189 | 90 | Cool White | B3U3G3 | 1.13 | 3 |
| SL3C4SLGH | 20,750 | 246 | 84 | Cool White | B3U3G3 | 1.13 | 3 |
| SL3N4BLGH | 3,800 | 42 | 90 | Neutral White | B1U1G1 | 0.60 | 1 |
| SL3N4CLGH | 5,700 | 63 | 90 | Neutral White | B1U2G1 | 0.60 | 1 |
| SL3N4DLGH | 6,900 | 82 | 84 | Neutral White | B2U3G2 | 0.60 | 1 |
| SL3N4HLGH | 11,500 | 126 | 91 | Neutral White | B2U3G2 | 0.87 | 2 |
| SL3N4ILGH | 13,750 | 164 | 84 | Neutral White | B3U3G3 | 0.87 | 2 |
| SL3N4RLGH | 17,000 | 189 | 90 | Neutral White | B3U3G3 | 1.13 | 3 |
| SL3N4SLGH | 20,750 | 246 | 84 | Neutral White | B3U3G3 | 1.13 | 3 |
| SL3W4BLGH | 3,100 | 42 | 74 | Warm White | B1U1G1 | 0.60 | 1 |
| SL3W4CLGH | 4,700 | 63 | 75 | Warm White | B1U2G1 | 0.60 | 1 |
| SL3W4DLGH | 5,700 | 82 | 70 | Warm White | B2U2G2 | 0.60 | 1 |
| SL3W4HLGH | 9,250 | 126 | 73 | Warm White | B2U3G2 | 0.87 | 2 |
| SL3W4ILGH | 11,500 | 164 | 70 | Warm White | B3U3G3 | 0.87 | 2 |
| SL3W4RLGH | 14,000 | 189 | 74 | Warm White | B3U3G3 | 1.13 | 3 |
| SL3W4SLGH | 17,000 | 246 | 69 | Warm White | B3U3G3 | 1.13 | 3 |

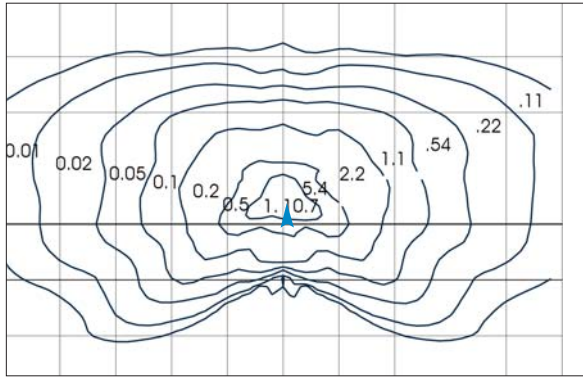
¹Polycarbonate lens option will decrease lumen values by 8%

Measurement Data - IES Type III

40 Watt

Iso-Illuminance Chart

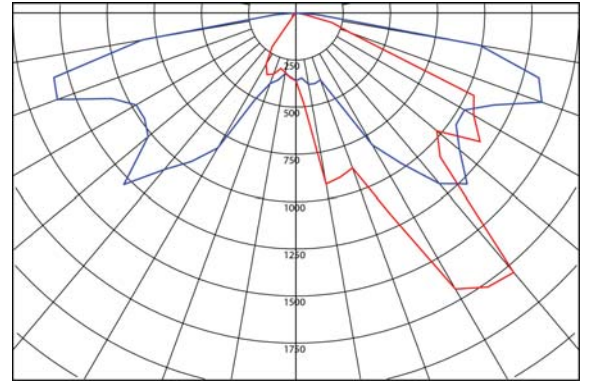
← FC - Lux →



Mounting height - 25' (7.6m)

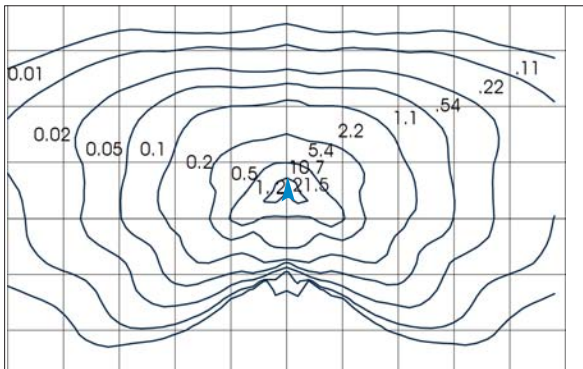
| Mounting Height | Multiplier |
|-----------------|------------|
| 10' (3.0m) | 6.25 |
| 15' (4.6m) | 2.778 |
| 20' (6.1m) | 1.563 |
| 25' (7.6m) | 1 |
| 30' (9.1m) | 0.694 |
| 35' (10.7m) | 0.51 |
| 40' (12.7m) | 0.391 |
| 45' (13.4m) | 0.309 |
| 50' (15.2m) | 0.25 |

Intensity Distribution Curve (cd)



Iso-Illuminance Chart

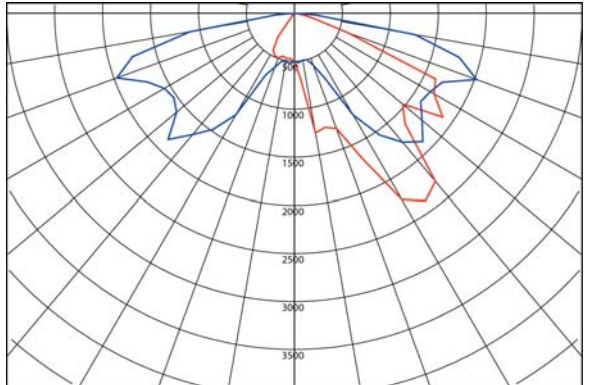
60 Watt



Mounting height - 25' (7.6m)

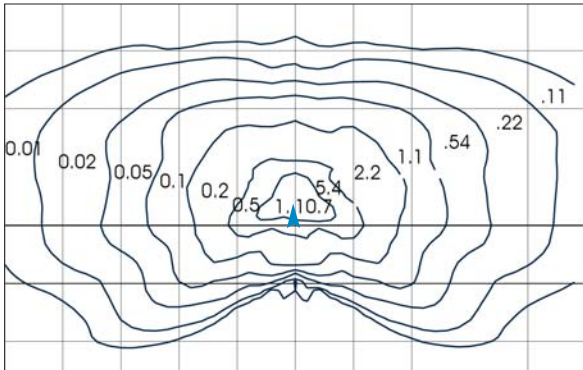
| Mounting Height | Multiplier |
|-----------------|------------|
| 10' (3.0m) | 6.25 |
| 15' (4.6m) | 2.778 |
| 20' (6.1m) | 1.563 |
| 25' (7.6m) | 1 |
| 30' (9.1m) | 0.694 |
| 35' (10.7m) | 0.51 |
| 40' (12.7m) | 0.391 |
| 45' (13.4m) | 0.309 |
| 50' (15.2m) | 0.25 |

Intensity Distribution Curve (cd)



Iso-Illuminance Chart

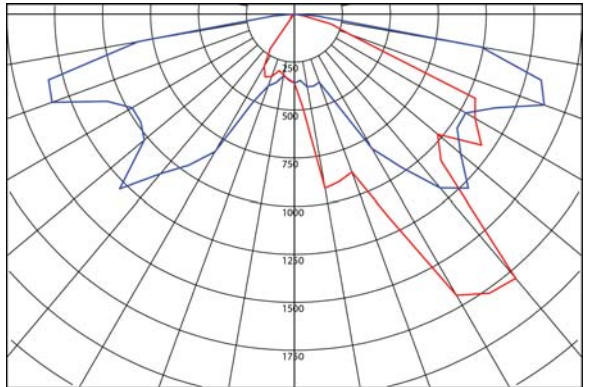
80 Watt



Mounting height - 25' (7.6m)

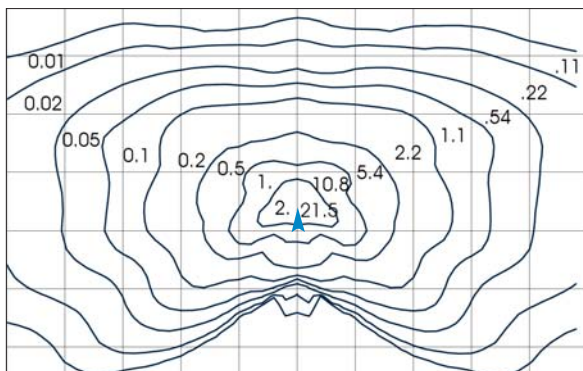
| Mounting Height | Multiplier |
|-----------------|------------|
| 10' (3.0m) | 6.25 |
| 15' (4.6m) | 2.778 |
| 20' (6.1m) | 1.563 |
| 25' (7.6m) | 1 |
| 30' (9.1m) | 0.694 |
| 35' (10.7m) | 0.51 |
| 40' (12.7m) | 0.391 |
| 45' (13.4m) | 0.309 |
| 50' (15.2m) | 0.25 |

Intensity Distribution Curve (cd)



Iso-Illuminance Chart

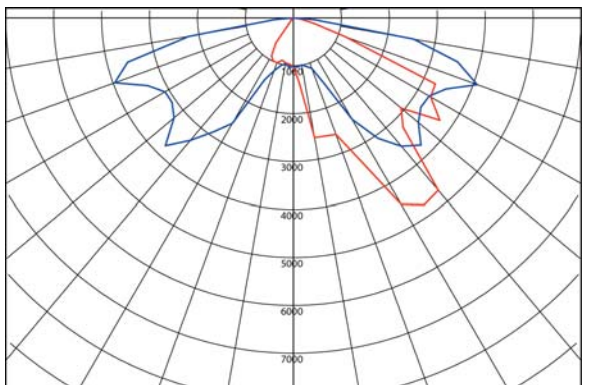
120 Watt



Mounting height - 30' (9.1m)

| Mounting Height | Foot Candle Multiplier |
|-----------------|------------------------|
| 10' (3.0m) | 9 |
| 15' (4.6m) | 4 |
| 20' (6.1m) | 2.25 |
| 25' (7.6m) | 1.44 |
| 30' (9.1m) | 1 |
| 35' (10.7m) | 0.735 |
| 40' (12.7m) | 0.563 |
| 45' (13.4m) | 0.444 |
| 50' (15.2m) | 0.36 |

Intensity Distribution Curve (cd)



▲ - Location of streetlight

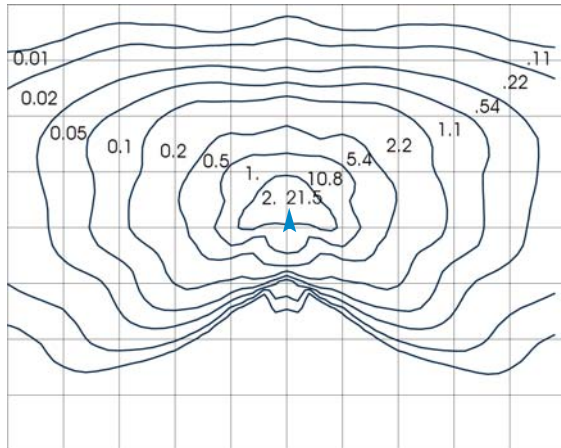
Spacing of each box is equal to mounting height in feet (meters).

Ex: 40' (12.2m) mounting height = each box is 40' (12.2m), 30' (9.1m) mounting height = each box is 30' (9.1m)

Values shown are for cool white and neutral white units, for warm white multiply the Fc or Lux value by .82

Measurement Data - IES Type III

Iso-Illuminance Chart
← FC - Lux →

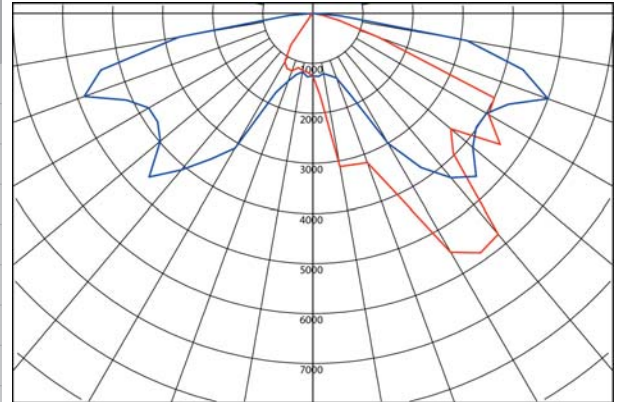


Mounting height - 30' (9.1m)

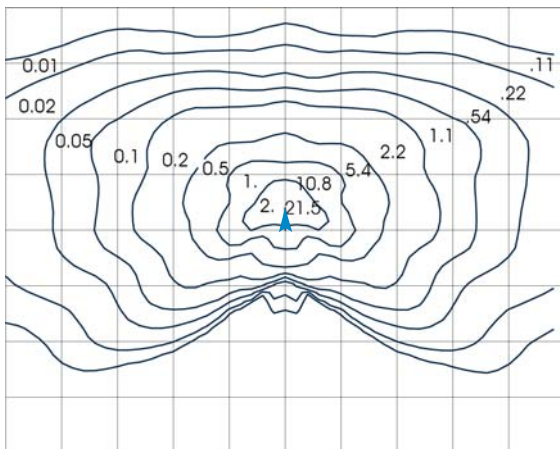
160 Watt

| Mounting Height | Multiplier |
|-----------------|------------|
| 10' (3.0m) | 9 |
| 15' (4.6m) | 4 |
| 20' (6.1m) | 2.25 |
| 25' (7.6m) | 1.44 |
| 30' (9.1m) | 1 |
| 35' (10.7m) | 0.735 |
| 40' (12.7m) | 0.563 |
| 45' (13.4m) | 0.444 |
| 50' (15.2m) | 0.250 |

Intensity Distribution Curve (cd)



Iso-Illuminance Chart

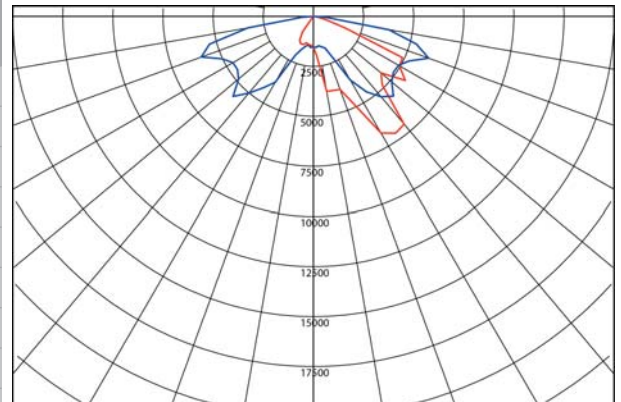


Mounting height - 35' (9.1m)

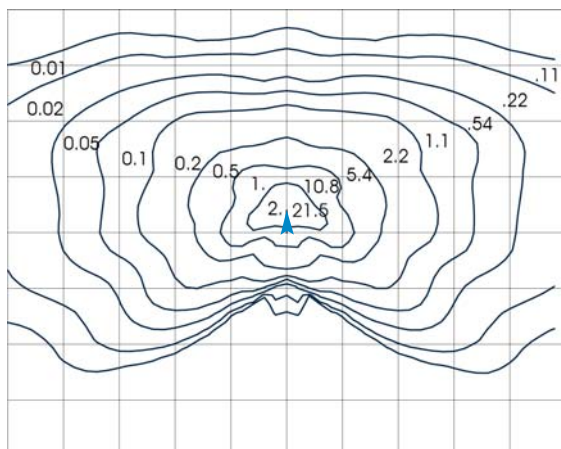
180 Watt

| Mounting Height | Multiplier |
|-----------------|------------|
| 10' (3.0m) | 9 |
| 15' (4.6m) | 4 |
| 20' (6.1m) | 2.25 |
| 25' (7.6m) | 1.44 |
| 30' (9.1m) | 1 |
| 35' (10.7m) | 0.735 |
| 40' (12.7m) | 0.563 |
| 45' (13.4m) | 0.444 |
| 50' (15.2m) | 0.250 |

Intensity Distribution Curve (cd)



Iso-Illuminance Chart

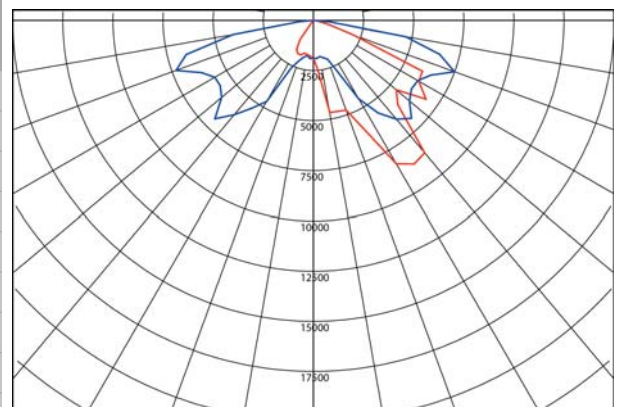


Mounting height - 40' (12.1m)

240 Watt

| Mounting Height | Multiplier |
|-----------------|------------|
| 10' (3.0m) | 12.250 |
| 15' (4.6m) | 5.444 |
| 20' (6.1m) | 3.063 |
| 25' (7.6m) | 1.960 |
| 30' (9.1m) | 1.361 |
| 35' (10.7m) | 1.000 |
| 40' (12.7m) | 0.766 |
| 45' (13.4m) | 0.309 |
| 50' (15.2m) | 0.605 |

Intensity Distribution Curve (cd)



▲ - Location of streetlight
Spacing of each box is equal to mounting height in feet (meters).
Ex: 40' (12.2m) mounting height = each box is 40' (12.2m), 30' (9.1m) mounting height = each box is 30' (9.1m)
Values shown are for cool white and neutral white units, for warm white multiply the Fc or Lux value by .82

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