Village of River Forest

General Guidelines and Small Wireless Facility Design, Stealth and Concealment Standards

The following general guidelines and design, stealth and concealment standards apply to the placement of small wireless facilities within the Village. Small Wireless Facilities are generally regulated by Title 5, Chapter 16 of the Village Code and all terms used herein are as defined in that Chapter.

General Standards. Every small wireless facility collocation shall comply with the following standards.

A. Small wireless facilities:

- 1. Antennas shall be mounted no less than twelve (12) feet above ground level.
- 2. Antennas shall, to the extent technically feasible, be designed and installed to appear hidden within the utility pole or to appear like an original part of the utility pole or wireless support structure.
- Each antenna not hidden within a utility pole shall be located entirely within a shroud enclosure not more than six (6) cubic feet in volume that is capable of accepting paint to match the approved color of the small wireless facility.
- 4. Top-mounted antennas and their enclosures shall not extend the diameter of the utility pole or wireless support structure at the level of the antenna attachment.
- 5. Side-mounted small wireless facility antennas within a shroud enclosure and side-mounted small wireless facility equipment enclosures shall be, if possible, flush mounted to the utility pole or wireless support structure at the level of the attachment. Metal flaps or "wings" shall extend from the enclosure to the utility pole or wireless support structure to conceal any gap between the between the small wireless facility and the utility pole or wireless support structure. The design of the flaps shall be integrated with the design of the small wireless facility.
- 6. Small wireless facilities located on street light poles or traffic control structures shall not block light emanating from the street light fixture

- or otherwise interfere with the purpose of the street light fixture or traffic control structure.
- 7. Small wireless facilities shall be attached to the utility pole or wireless support structure using rigid steel clamping mounts or stainless steel banding to the exterior of any metal pole. All mounts and banding shall be of the same color as the utility pole or wireless support structure, except as otherwise approved by the Village Engineer. Care should be taken to integrate the mounting elements into the small wireless facility design. Through-bolting or use of lag bolts on Village-owned utility poles is prohibited.
- 8. For attachments to existing utility poles, wires serving the small wireless facility shall be concealed within the hollow interior of the utility pole, or if concealment is not technically feasible, flush mounted to an existing utility pole in an enclosed wire chase on which the facilities are collocated. For new utility poles or wireless support structures, wires serving the small wireless facility shall be concealed within the hollow interior of the utility pole or wireless support structure.
- All small wireless facilities shall be installed in accordance with all applicable Village codes. No wiring or cabling shall interfere with any existing wiring or cabling installed by the Village, a utility or a wireless services provider.
- 10. No guy or other support wires will be used in connection with a small wireless facility unless the small wireless facility is to be attached to an existing utility pole or wireless support structure that incorporates guy wires prior to the date the applicant has applied for a permit.
- 11. The small wireless facility, including the antenna, and all related equipment when attached to an existing or new utility pole or wireless support structure, must be designed to withstand a wind force and ice loads in accordance with the applicable standards established in Chapter 25 of the National Electric Safety Code for utility poles, Rule 250-B and 250-C standards governing wind, ice, and loading forces on utility poles, in the American National Standards Institute in TIA/EIA Section 222-G established (ANSI) by Telecommunications Industry Association (TIA) and the Electronics Industry Association (EIA) for steel wireless support structures and the applicable industry standard for other existing structures. For any

small wireless facility attached to a Village-owned utility pole or, in the discretion of the Village, to a non-Village-owned utility pole or wireless support structure, the operator of the small wireless facility must provide the Village with a structural evaluation of each specific location containing a recommendation that the proposed installation passes the standards described above. The evaluation must be prepared by a professional structural engineer licensed in the State of Illinois.

- 12. The Village will not authorize any attachments of small wireless facilities to a Village-owned utility pole that negatively impacts the structural integrity of the pole. The Village may condition approval of the collocation on replacement or modification of the Village-owned utility pole if necessary to meet Village standards.
- 13. Small wireless facilities shall be located in a manner that meets the Americans with Disabilities Act of 1990 and does not obstruct, impede or hinder the usual pedestrian or vehicular path of travel.
- 14. Small wireless facilities collocated on Village-owned utility poles may not use the same power or communication source providing power and/or communication for the existing infrastructure. The wireless provider shall coordinate, establish, maintain and pay for all power and communication connections with private utilities.
- 15. A four (4) inch by six (6) inch plate with the wireless provider's name, location identifying information, and emergency telephone number shall be permanently fixed to the small wireless facility equipment enclosure or shroud.

B. Replacement of Existing Street Light Poles

The following standards apply when replacing an existing street light pole with a combination small wireless facility and street light pole. Such replacements should only be located where an existing street light pole can be removed and replaced, or at a new location where it has been identified that a street light is necessary. All such replacements shall meet the following standards:

1. All replacement street light poles shall be a similar design, size, material, and color as the replaced existing street light pole and other poles within the immediate area.

- 2. All replacement street light poles and pole foundations shall conform to the Village's standards and specifications for street light design and construction, as depicted in Exhibit A.
- 3. Replacement street light poles shall be an equal distance from other street light poles based upon the average distance between existing street light poles within the designated area.
- 4. Street light poles shall be designed and engineered to support a luminaire and mast arm of length equal to that of the existing pole to be replaced or of a length approved by the Director of Public Works or his designee based upon the location of the replacement street light pole.
- 5. All luminaires and mast arms shall match the arc and style of the original luminaire and mast arm, unless otherwise approved by the Director of Public Works or his designee.
- 6. The replacement luminaire and mast arm shall be at the same height above the ground as the existing luminaire and mast arm.
- 7. All replacement street light poles shall have new light emitting diode (LED) light fixtures of the same manufacturer, model and light output as the removed fixture and nearby light fixtures, or as otherwise approved by the Director of Public Works or his designee.
- 8. Replacement street light poles shall have a five (5) year manufacturer's replacement warranty.
- Replacement street light poles shall meet American Association of State Highway and Transportation Officials structural guidelines for roadway applications and the American National Standards Institute requirements for vibrations.
- 10. Street light pole height shall be measured from the ground to the top of the street light pole.
- 11. All replacement street light pole heights shall be consistent with those of existing street lights.
- 12. The small wireless facility components shall be sized appropriately to the scale of the street light pole.
- 13. A decorative transition shall be installed over the equipment enclosure upper bolts, or a decorative base cover shall be installed to

- match the equipment enclosure size. All hardware connections shall be hidden from view. Each street light pole component shall be architecturally compatible to create a cohesive aesthetic.
- 14. Replacement street light poles shall continue to be owned by the Village.
- C. Installation of new wireless support structures, where allowed.
 - 1. A new wireless support structure shall be designed to minimize the visual and aesthetic impact of the new vertical element and associated small wireless facilities upon the surrounding area and shall blend in with the surrounding streetscape with minimal visual impact. The Village may require a new wireless support structure to be constructed of a specific material that will enhance the stealth and concealment of the structure.
 - 2. New wireless support structures shall match the design, type, material and color of existing utility poles, including street light poles, within the immediate area, except as otherwise approved by the Director of Public Works or his designee, as depicted in Exhibit A.
 - Within residentially zoned areas, new wireless support structure installations shall be located where the shared property line between two residential parcels intersect the right-of-way whenever possible, unless an unsafe condition, cluttered appearance, or other violation of these standards will result.
 - 4. New wireless support structures shall be equal distance from other utility poles based upon the average distance between existing utility poles within the designated area. If a new wireless support structure cannot be located the average distance from other utility poles, a new wireless support structure may be approved if such wireless support structure is designed as a stealth pole.
 - 5. The centerline of a new wireless support structure shall be in alignment with existing utility poles where present, or with street or parkway trees along the same side of the right-of-way.
 - 6. New wireless support structures shall be located a minimum of twelve (12) feet from driveway aprons.

- 7. New wireless support structures shall be sited outside the critical root zone of existing trees having a six (6) inch diameter at breast height located in the immediate vicinity.
- 8. The outside diameter of any new wireless support structure shall not exceed the diameter of existing utility poles located within 300 feet of the location of the new wireless support structure.
- 9. New wireless support structures shall not exceed the heights as authorized by Title 5, Chapter 16 of the Village Code.
- 10. New wireless support structures shall be round in shape with a smooth pole shaft.
- 11. New wireless support structures incorporating pole-mounted small wireless facilities shall be taped in diameter from the base to the top, with a maximum diameter of twelve (12) inches at the base and a maximum diameter of eight (8) inches at the top.
- 12. New wireless support structures incorporating small wireless facilities in an equipment enclosure within a base may utilize poles tapered in diameter or poles having a consistent outside diameter.
- 13. All new wireless support structures must be supported with a reinforced concrete foundation designed, stamped, sealed and signed by a professional engineer licensed and registered in the State of Illinois, and subject to the Village Engineer's approval.
- 14. All anchor bolts must be concealed from public view, with an appropriate pole boot or cover powder-coated to match the wireless support structure color.
- 15. If multiple requests are received to install two (2) or more wireless support structures in approximately the same location, in a manner that would violate these requirements or other Village requirements, the Village shall resolve such conflict through whatever reasonable and nondiscriminatory manner it deems appropriate.
- D. Stealth and Concealment Requirements.

Wireless providers shall comply with the design and construction standards that are generally applicable to utility installations in the public right-of-way, as set forth in Title 5 of the Village Code, as well as these standards, any other written design standards for decorative utility poles, or reasonable

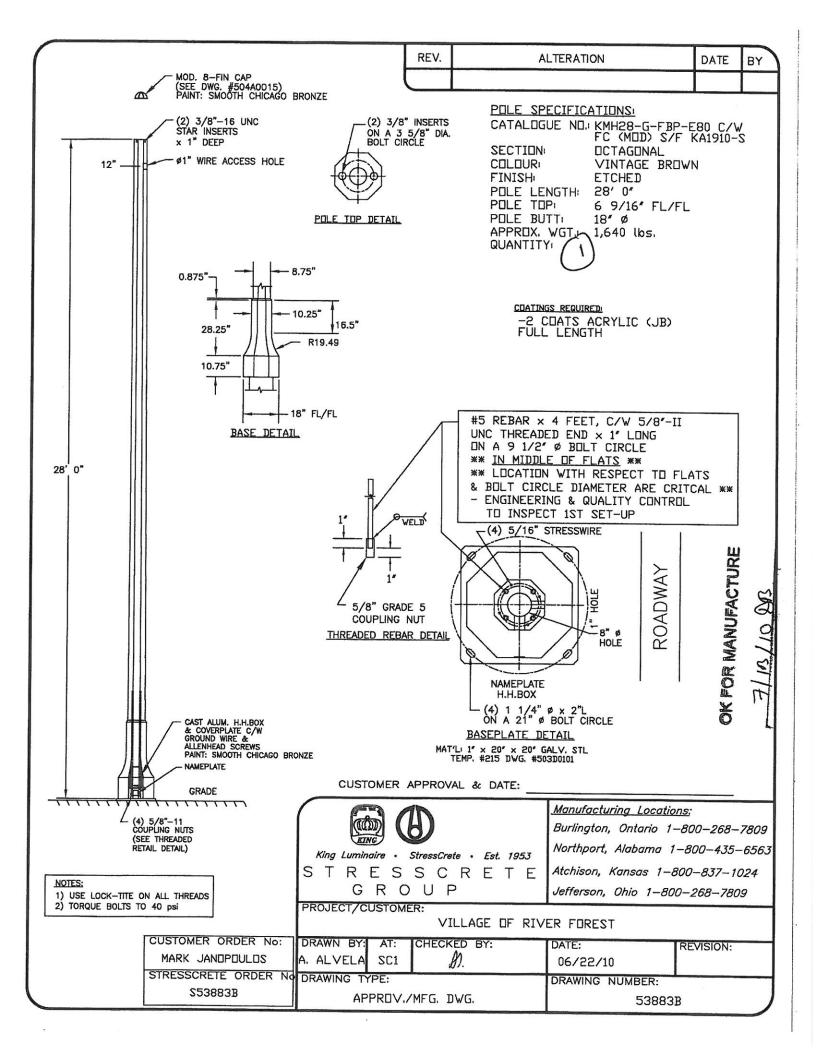
stealth, concealment, and aesthetic requirements that are otherwise identified by the Village in an ordinance, written policy adopted by the Village Board of Trustees, in the Village's comprehensive plan, or in another written design plan that applies to other occupiers of the rights-of-way, including on a historic landmark or in a historic district. In addition:

- The use of stealth technology in the location and construction of small wireless facilities is required whenever and wherever possible. Stealth technology means using the least visually and physically intrusive design and equipment that is not technologically or commercially impractible under the facts and circumstances, to employ methods that blend into surroundings and not be visible; and to minimize adverse aesthetic and visual impacts on the right-of-way, property, building and/or other facilities adjacent to, surrounding and in generally the same area as the requested location of such small wireless facilities.
- 2. Small wireless facilities, including but not limited to antennas, equipment enclosures, mounting brackets and hardware, mounting posts, cables, and shrouds, shall be of a color that is identical to the utility pole or of a neutral color compatible with the color of the utility pole and any surrounding elements so as to camouflage or conceal their appearance, create consistency among right-of-way infrastructure, and to make such small wireless facilities as unobtrusive as possible. The Village Engineer may approve compatible color schemes for antennas and small wireless facilities.
- 3. Mechanical equipment and devices shall be concealed underground, mounted within a concealment box designed as a decorative pole base or within unobtrusive equipment enclosures or other devices mounted directly to the pole a minimum of eight (8) feet above ground level and screened by means of Village-approved banners or other approved concealment methods.
- 4. Small wireless facilities must be located and oriented in such a way as to minimize view blockage.
- 5. The wireless provider shall use the smallest suitable wireless facilities then in industry use, regardless of location, for the particular application.
- 6. Additional landscaping and fencing shall be required to help mitigate the effects of the installation of any ground-mounted equipment.

- 7. Small wireless facilities shall not be artificially lighted or marked, except as required by law.
- 8. Small wireless facilities, other than top-mounted antennas, shall be mounted on the side of the utility pole or wireless support structure opposite the direction of vehicular traffic along the same side of the right-of-way.
- 9. Alternative measures for concealment may be proposed by the wireless provider and approved by the Village Engineer, if the Village Engineer determines that the optional measures will be at least as effective in concealing the small wireless facilities as the measures required above.
- E. Historic Districts and Landmarks: The Village's historic district is depicted in Exhibit B.
- F. Historic District or Historic Landmark Limitations:
 - 1. The above design or concealment measures with respect to a historic district or historic landmark, including restrictions on a specific category of utility poles, may not have the effect of prohibiting any provider's technology. Such design and concealment measures shall not be considered a part of the small wireless facility for purposes of the size restrictions of a small wireless facility.
 - 2. This subsection shall not be construed to limit the Village's enforcement of historic preservation in conformance with the requirements adopted pursuant to the Illinois State Agency Historic Resources Preservation Act or the National Historic Preservation Act of 1966, 54 U.S.C. Section 300101 *et seq.*, and the regulations adopted to implement those laws.
- G. These standards, once adopted, may be amended at the direction of the Village Administrator as deemed necessary without further Board review or approval, consistent with the intent of Chapter 16 of the Village Code.

EXHIBIT A

Village Street Light Pole Specifications





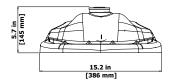
Project Type

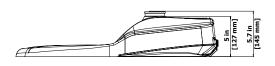
Catalog No.

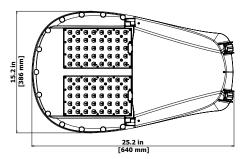
GreenCobra™ LED Street Light GCL

Luminaire Data

Weight 18 lbs [8.17 kg] **EPA** 0.8 ft.²







Ordering Information

Sample Catalog No. GCL1 60G MV WW 2S GY 350 PCR5 RWG

Product	No. & Type of LEDs	Voltage	Color Temperature	Distribution	Finish ¹	Drive Current	Options	
GCL1	60G 80G	MV 120-277V HV 347-480V	WW 3000K NW 4000K CW 5000K	2S Type 2 Short 2R Type 2 Medium 3R Type 3 Medium	GY Gray DB Dark Bronze BK Black	350° 350mA 530° 530mA 610° 610mA 700° 700mA	HSS ⁶ House Side Shield CSS ⁷ Cul-de-sac Shield FDC ³ Fixed Drive Current LPCR Less Photocontrol Receptacle PCR5 ⁴ ANSI 5-wire Photocontrol Receptacle PCR7 ⁴ ANSI 7-wire Photocontrol Receptacle PCR5-CR ⁵ Control Ready 5-wire Photocontrol Receptacle PCR7-CR ⁵ Control Ready 7-wire Photocontrol Receptacle 4B 4-Bolt Slip-Fitter RWG Rubber Wildlife Guard WL Utility Wattage Label	

Notes:

- 1 Gray, Black and Dark Bronze standard. Consult factory for other finishes.
- 2 Factory set drive current, field adjustable standard. Refer to Performance Data Table. Consult factory if wattage limits require a special drive current.
- 3 Non-field adjustable, fixed drive current. Specify required drive current. Not available with PCR5-CR or PCR7-CR options.
- 4 Field adjustable current selector included. Wireless node dimming is disabled, field changeable connectors included to enable dimming with PCR5/7.
- 5 Control-ready wiring at factory for wireless node dimming. Default maximum drive current (700mA) must be specified.
- 6 Flush mounted house side shield. Shield cuts light off at 1/2 mounting height behind luminaire.
- 7 Flush mounted cul-de-sac shield. Shield cuts light off at 1/2 mounting height behind luminaire and 1-1/2 mounting height on either side of luminaire.
- 8 Specify Color (GY, DB, BK)
- 9 Specify MV (120-277V) or HV (347V-480V)

Accessories* HSS⁶ House Side Shield, Snap-On* Cul-De-Sac Side Shield, Snap-On* CSS7 SPB⁸ Square Pole Horizontal Arm Bracket RPB⁸ Round Pole Horizontal Arm Bracket PTB⁸ Pole Top Tenon Horizontal Arm Bracket \mathbf{WB}^8 Wall Horizontal Arm Bracket BSK Bird Deterrent Spider Kit PC⁹ Twist Lock Photocontrol LLPC9 Long-Life Twist Lock Photocontrol Twist Lock Shorting Cap

^{*}Accessories are ordered separately and not to be included in the catalog number. For factory installed HSS, CSS specify as option in luminaire catalog number.











GreenCobra™ LED Street Light

Luminaire Specifications

Housing

Die cast aluminum housing with universal twobolt slip fitter mounts to 1-1/4" to 2" (1-5/8" to 2-3/8" O.D.) diameter mast arm. Four-bolt mounting bracket (4B option) is available. Mounting provisions meet 3G vibration per ANSI C136.31-2001 Normal Application, Bridge & Overpass. Mounting has leveling adjustment from ± 5° in 2.5° steps. Electrical components are accessed without tools via high-strength, non-conductive polycarbonate door with stainless steel guickrelease latches. Polycarbonate material is UL recognized and meets UL 746C for outdoor usage. Standard mast arm guard is Polycarbonate with removable insert. Available rubber wildlife guard (RWG option) conforms to mast arm with no gaps.

Light Emitting Diodes

Hi-flux/Hi-power white LEDs produce a minimum of 90% of initial intensity at 100,000 hours of life based on IES TM-21. LEDs are tested in accordance with IES LM-80 testing procedures. LEDs have correlated color temperature of 3000K (WW), 4000K (NW), or 5000K (CW) and 70 minimum CRI. LEDs are ROHS compliant, 100% mercury and lead

Optical Systems

Micro-lens systems produce IESNA Type 2 Short (2S), Type 2 Medium (2R), and Type 3 Medium (3R) distributions. Luminaire produces 0% total lumens above 90° (BUG Rating, U=0). Optical systems maintain an IP66 rating. Optional house side shield cuts light off at 1/2 mounting height behind luminaire. Cul-de-sac shield provides back and side light control for end of cul-de-sac applications. Both shields are field installable without tools.

Electrical

Power supply life is rated for 100,000 hours. Power Supply is 1-10V dimmable. Power supply features a minimum power factor of .90 and <20% Total Harmonic Distortion (THD). EMC meets or exceeds FCC CFR Part 15. Terminal block accommodates 6 to **Photometry** 14 gauge wire and is aligned for straight wire entry. Surge protection complies with IEEE/ANSI C62.41 Category C High, 20kV/10kA.

Controls

3-Wire photocontrol receptacle is standard. ANSI C136.41 5-wire (PCR5) or 7-wire (PCR7) photocontrol receptacles are available. All photocontrol receptacles have tool-less rotatable base. Wireless control module is provided by

Finish

Housing receives a fade and abrasion resistant polyester powder coat finish. Finish tested 3000 hours in salt spray exposure per ASTM B117. Finish meets scribe creepage rating 9 of 10 per ASTM 1654. Finish tested 500 hours in UV exposure per ASTM G154 and meets ASTM D523 gloss retention.

Listings/Ratings/Labels

Luminaires are UL listed for use in wet locations in the United States and Canada. DesignLights Consortium™ qualified 120-277V product.² International Dark Sky Association listed. Luminaire is qualified to operate at ambient temperatures of -40°C to 40°C. Assembled in the U.S.A.

Luminaires photometrics are tested by certified independent testing laboratories in accordance with IES LM-79 testing procedures.

10-year limited warranty is standard on luminaire and components.

Performance Data

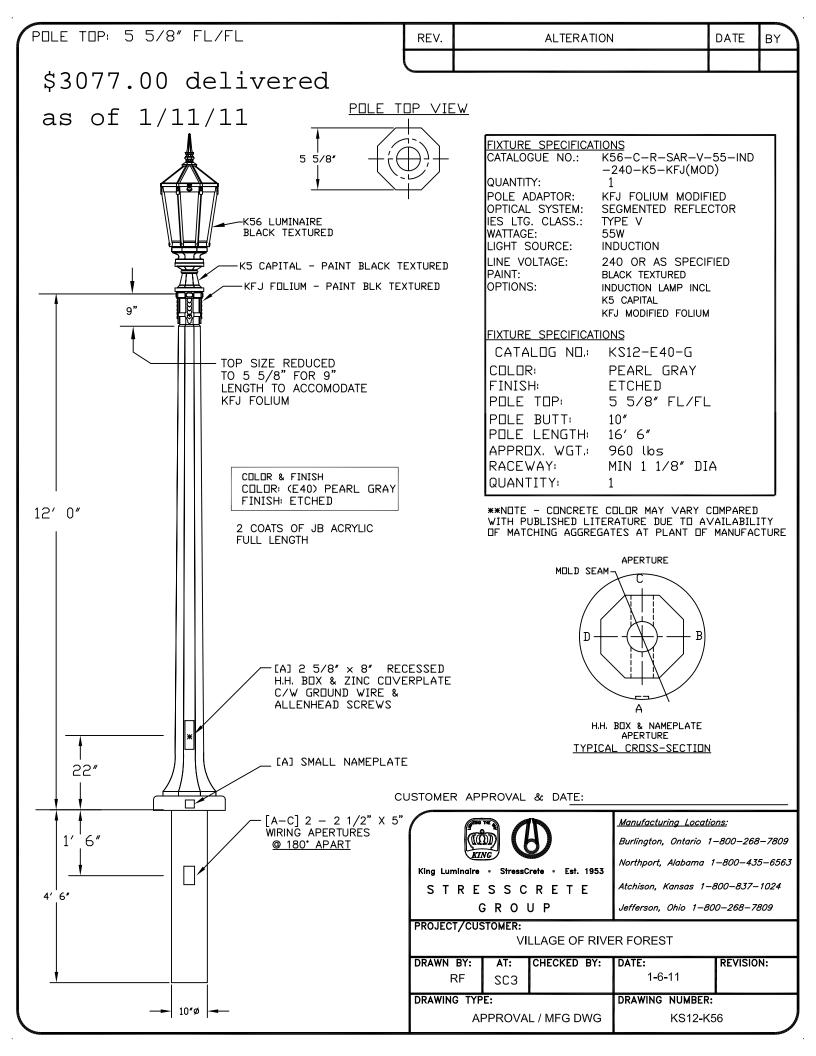
All data nominal, consult factory for IES files or LM-79 reports.

Warm White (3000K) WW					Type 2S	Type 2R	Type 3R
No. of LEDs & Type	Drive Current (mA)	System Wattage (W)	Delivered Lumens (Lm)	Efficacy (Lm/W)¹	BUG Rating	BUG Rating	BUG Rating
	350	70	8800	126	B2 U0 G2	B1 U0 G2	B2 U0 G2
GCL1 60G	530	105	12700	121	B2 U0 G2	B2 U0 G2	B2 U0 G2
GCLI 60G	610	120	14200	118	B2 U0 G2	B2 U0 G2	B3 U0 G3
	700	135	15600	116	B2 U0 G2	B2 U0 G2	B3 U0 G3
	350	85	11150	132	B2 U0 G2	B2 U0 G2	B2 U0 G2
GCL1 80G	530	130	16000	123	B2 U0 G2	B2 U0 G2	B3 U0 G3
GCLI 80G	610	160	18700	117	B3 U0 G2	B3 U0 G2	B3 U0 G3
	700	185	20800	112	B3 U0 G2	B3 U0 G3	B3 U0 G3

leutral White (4000K) NW					Type 2S	Type 2R	Type 3R
No. of LEDs & Type	Drive Current (mA)	System Wattage (W)	Delivered Lumens (Lm)	Efficacy (Lm/W)¹	BUG Rating	BUG Rating	BUG Rating
	350	70	9250	133	B1 U0 G2	B2 U0 G2	B2 U0 G2
6614.606	530	105	13300	127	B1 U0 G2	B2 U0 G2	B2 U0 G2
GCL1 60G	610	120	15000	125	B2 U0 G2	B2 U0 G2	B3 U0 G3
	700	135	16400	122	B2 U0 G2	B2 U0 G2	B3 U0 G3
	350	85	11700	138	B2 U0 G2	B2 U0 G2	B2 U0 G2
GCL1 80G	530	130	16800	129	B3 U0 G2	B2 U0 G2	B3 U0 G3
GCLI 80G	610	160	20000	125	B3 U0 G2	B3 U0 G3	B3 U0 G3
	700	185	22100	119	B3 U0 G3	B3 U0 G3	B3 U0 G3

Notes:

- 1 Nominal lumens. Normal tolerance ± 10% due to factors including distribution type, LED bin variance, and ambient temperatures.
- 2 Not all versions DLC qualified. Consult qualified product list at www.designlights.org for latest product listing.





Type	Date	•••••
Model #	Prepared by	•••••
Project		•••••
Comments		

LEDioc

Lamp Upgrade Engineered Solution

Applications include: Street/Area, Historic Districts, City Parks & Recreation, Campuses, Glass Lens Post Tops, Plastic Lens Post Tops, Teardrop Pendants

Specification Features

Construction

The LED retrofit kit includes a separate LED light source, LED driver and transient immunity device. All three components are individually replaceable. The LED retrofit kit is capable of adjusting the light center length of the LED light source to match the photometric light center length of the original design.

Mounting

LED lampholder is hardwire mounted on a double clamp assembly and can be field adjustable. Medium and Mogul base designs are optional.

Optics

Designed for use in the specific existing HID post top and pendant mount luminaire. House-Friendly™ versions available with reduced house side lumens.

Electrical

Constant Current Driver is 120-277V input, 300mA output and has 0-10V dimming capability, operating temperature is -30° to +60° C. Electrical components are mounted separately to allow for easy serviceability. Transient Immunity device or surge protector supplied per system requirements.

Reliability

Cast aluminum passive thermal management which allows air circulation around each LED module to ensure performance and long life.

Warranty

See the EYE Lighting full Warranty and Terms and Conditions of Sale at www.eyelighting.com.



Order Guide

FAMILY

LEW = LEDioc Engineered Hardwired*

LES = LEDioc Engineered Solution

LEH = LEDioc Engineered House-Friendly[™] For use with MED and MOG base options LAMP TYPE

25WH-323 = 25W, House-Friendly[™] Version; 3 Sided, 2 Modules, 3 Chips

37W-333 = 37W; 3 Sided, 3 Modules, 3 Chips

37WH-433 = 37W, House-Friendly™ Version; 4 Sided, 3 Modules, 3 Chips

CRI / KELVIN

MOUNT OPTIONS

830 = 80-89 CRI; 3000K

840 = 80-89 CRI; 4000K

750 = 70-79 CRI; 5000K

HWD = Hardwired*

MED = Medium Base

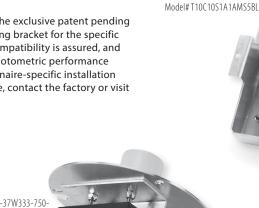
 $\mathbf{MOG} = \mathbf{Mogul} \; \mathbf{Base}$



LEDioc

Lamp Upgrade Engineered Solution

The complete LEDioc engineered solution includes: the exclusive patent pending EYE LEDioc lamp, driver, surge protector, and mounting bracket for the specific luminaire. Installation is easy, thermal/mechanical compatibility is assured, and lamp LCL is maintained, preserving the optics and photometric performance of the existing luminaire. Each solution includes luminaire-specific installation instructions for the installer. Other solutions available, contact the factory or visit eyelighting.com for other solutions





Hadco

EYE Cat # LES-37W333-750-MED-HA01-UNV Model # V25 J B5 ND 150S G



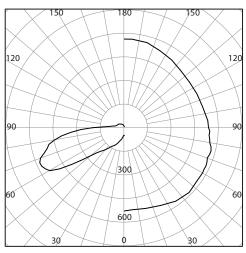
GE Town and Country

EYE Cat # LES-37W333-750-MED-GE02-UNV

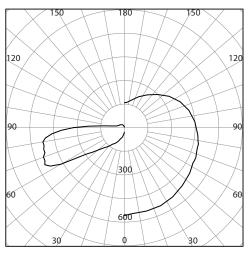
EYE Cat # LES-37W333-750-MED-ST02-UNV Model # MS805A/3/x/100HPS120/RE3/x/PA/PG

Photometrics

STANDARD



HOUSE-FRIENDLY™



^{*} Photometric distribution is based on Lexalite Lindy 424 per DLC specifications in a Type V distribution.

EYE Lighting International of North America, Inc.

a division of Iwasaki Electric of Japan

9150 Hendricks Road Mentor, Ohio 44060 Tel: (888) 665-2677 Fax: (440) 350-7001

EXHIBIT B

Village of River Forest Historic District Map

