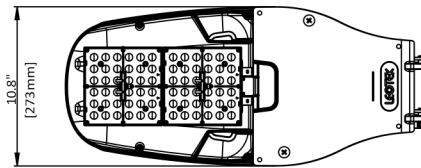
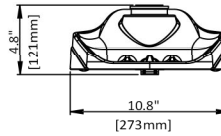
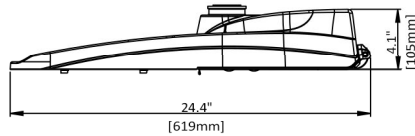


KarbonCobra LED Streetlight Series

KC2 Specification Data Sheet

Project Wisconsin DOT QPL Listing
 Type Type C LED Roadway Luminaire
 Catalog No. KC2-72A-MV-40K7-T3R-GY-P13-WL-SC



Luminaire Data

Weight 10.6 lbs [4.8kg]

EPA 0.46 ft²

Ordering Information

Sample Catalog No.: KC2-72A-MV-30K7-T2R-DB1-CF-P5-SP2-PS-WL1-4B-BBL-IP54-PT6-RWG

New Features

- 7 Pin Control Ready Receptacle Standard.
- Luminaire-level IP54 rating optional.
- Up to 20+ Performance Codes.
- Full dimming capability with PS, up to 2000+ output options.
- Up to 50°C rating.
- Die-cast aluminum ADC1 housing.
- Single Hand door release, tool free.
- Improved Optical Performance with more distribution options.
- Standard 3-position straight terminal block.

KC2	72A	MV	40K7	T3R	GY	P13-WL-SC
Product	LED Code	Voltage	Color Temp CRI	Optical Distribution	Finish*	Performance Code
KC2 KarbonCobra Size 2	72 A 72 LEDs Gen-A	MV 120-277Vac HV 347-480Vac	22K7 2200K, 70CRI 27K7 2700K, 70CRI 30K7 3000K, 70CRI 40K7 4000K, 70CRI 50K7 5000K, 70CRI 30K8¹ 3000K, 80CRI 40K8¹ 4000K, 80CRI 50K8¹ 5000K, 80CRI	T2R Type-2(regular) T2F Type-2(forward) T3R Type-3(regular) T3F Type-3(forward) T4R Type-4(regular) T4F Type-4(forward) T5 Type-5	BK Black DB1 Dark Bronze (RAL8019) GY Gray CF² Coastal Finish	P1 to P26 (see Page 3, 4 for details))

Driver & Control Options	General Options
Driver Options (0-10V driver standard) D4i³ DALI D4i Driver	Surge (10kV/5kA, Fail-to-On Surge Protection Device standard) LSSP2 20kV/10kA Extreme Surge, Fail-to-Off SP2 20kV/10kA Extreme Surge, Fail-to-On
Receptacle Options (ANSI 7-PIN Control Ready Receptacle standard.) ⁴ LPGR No Receptacle On Top of the luminaire TLR4U³ D4i DALI 4-PIN Twist Lock Receptacle (Top) TLR4L³ D4i DALI 4-PIN Twist Lock Receptacle (Bottom)	Wattage Label WL Wattage Label, ANSI C136.15-2015 compliant WL1 Wattage Label, ANSI C136.15-2020 compliant
Control Options LLPC⁵ Long Life Photocell PS⁶ Field Adjustable Performance Selector SC Shorting Cap ZMSL2¹⁰ Zhaga Book 18 Motion Sensor w/ L2 Lens ZMSL7¹⁰ Zhaga Book 18 Motion Sensor w/ L7 Lens	Shields* CSS Cul-De-Sac Shield, Snap-On (factory installed) FSS Front Side Shield, Snap-On (factory installed) HSS House Side Shield, Snap-On (factory installed) VHS 80 Degree Cutoff Shield, Snap-On (factory installed) Other 4B 4-Bolt Mounting Bracket BBL Bubble level (inside of the housing) DSC Optional Door Safety Cable DFXXX⁸ Double Fuse ('XXX' = specify 208, 240, 480V) IP54⁷ Luminaire level IP54 rating PTX⁹ 12 AWG Three-Wire Pigtail with Length in Feet ('X' = specify length 3, 6, 10) RWG Rubber Wildlife Guard SFXXX⁸ Single Fuse ('XXX' = specify 120, 277, 347V)

General Accessories*
Shields* CSSK2 Cul-De-Sac Shield, Snap-On* FSSK2 Front Side Shield, Snap-On* HSSK2 House Side Shield, Snap-On* VHSK2 80 Degree Cutoff Shield, Snap-On*
Mounting Brackets (Specify finish)** PTB Pole Top Tenon Horizontal Arm Bracket PTB2 Pole Top Tenon Horizontal Arm Bracket (2@180°) RPB Round Pole Horizontal Arm Bracket SPB Square Pole Horizontal Arm Bracket WB Wall Horizontal Arm Bracket
Other** BSK Bird Deterrent Spider Kit LLPCMV Long Life Photocontrol MV LLPCHV Long Life Photocontrol HV

*Unless specified for field installation, Shields are shipped installed.
 **All Mounting and Other Accessories are ordered & shipped separately, not to be included in the luminaire's catalog number.

1. 80CRI option only available in 3000K, 4000K & 5000K CCTs and may have longer lead times (contact factory).
2. Specify the CF Option for coastal installation. See warranty for details.
3. 'TLR4U' & 'TLR4L' twist lock receptacle option requires 'D4i' DALI driver option to be selected.
4. ANSI 7-PIN Control Ready Receptacle standard, is compatible with 'SC', 'LLPC', and Networked Lighting Controls (NLC) nodes (by LEOTEK or others).
5. 'LLPC' & 'SC' do not ship installed, included w/ luminaire.
6. 'PS' Field Adjustable Performance Selector enables field adjustable light output dimming control from the specified Performance Code (see table on pg.5 for details).
7. When 'IP54' is specified, 'RWG' will be included.
8. For single or double fusing, 'XXX' must specify required voltage.
9. 'PTX' option, 'X' must specify pigtail length in feet.
10. 'ZMSL2', or 'ZMSL7' Zhaga Book 18 motion sensor option require both "D4i" DALI driver option and 'TLR4L' D4i DALI 4-PIN twist lock receptacle (bottom) to be selected.
 Top receptacle for use with wireless DALI control node (by LEOTEK or others).

Luminaire Specifications

Housing & Construction

Die-cast aluminum ADC1 housing with universal two-bolt slip fitter mounts to 1-1/4" to 2" (1-5/8" to 2-3/8" O.D. diameter mast arm. One-piece aluminum housing provides passive heat-sinking of the LEDs and has upper surfaces that shed precipitation. Four-bolt mounting bracket (4B option) is available. Mounting provisions meet 3G vibration per ANSI C136.31 Normal Application, Bridge & Overpass by independent lab. Mounting has leveling adjustment from $\pm 5^\circ$ in 2.5° steps. All hardware is stainless steel. Electrical components are accessed without tools via die cast aluminum door with one stainless steel quick release latch. Provided standard with removable polycarbonate wildlife guard. For additional protection, optional rubber wildlife guard (RWG) which conforms snugly to the mast arm is offered. All exposed hardware and fasteners are corrosion resistant stainless-steel. Entire luminaire is IP54 rated if "IP54" is specified.

Light Emitting Diodes

Hi-flux/Hi-power white LEDs produce a minimum of 90% of initial lumen output at 60,000 hours of life based on IES TM-21 (at 25°C) LEDs are tested in accordance with IES LM-80 testing procedures. IES TM-21 lumen maintenance life projection is based on 6X the duration of the LED's IES LM-80 performance data. LED correlated color temperature options of 2200K, 2700K, 3000K, 4000K, or 5000K @ 70CRI or 80CRI (2200K and 2700K are 70CRI only). LEDs are 100% free of mercury and lead.

Power Supply

IP66 rated power supply with high power factor of > 90%. Auto sensing universal AC input from 120 to 277VAC (MV model) and 347 to 480VAC (HV mode) rated for both line to line and line to neutral applications. Maximum THD rating of 20%. Class 1 or Class 2. Built-in overheating protection mechanism will reduce drive current to LEDs and electrical components if the driver experiences unusual internal overheating situation. Built-in short circuit, voltage overload, and current overload protection with automatic recovery after correction.

Optical Systems

All micro-lens optical systems produce IESNA Type 2, Type 3, Type 4, or Type 5 distributions and are fully sealed to maintain an IP66 rating. Luminaire produces 0% total lumens above 90° (BUG Rating, U=0). Optional house side shield(HSS) cuts light off at 1/2 mounting height behind luminaire. Front side shield (FSS) cuts light off at approximately one mounting height in front of the luminaire (street side). Cul-de-sac shield (CSS) provides back and side light control for end of cul-de-sac applications. 80 degree cutoff shield (VHS) eliminates very high angle light above 80 degrees from luminaire. All shields are field installable without tools. (see 'Ordering Information' for details). **For ComfortEnhanced low glare solution, please refer to KarbonCobra ComfortEnhanced specification.**

Photometry

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

Electrical

Rated life of electrical components is 100,000 hours. Standard 0-10V dimmable drivers use an isolated power supply with 6kV integral surge standard. Power supply features a minimum power factor of 0.90 and <20% Total Harmonic Distortion (THD). EMC meets or exceeds FCC CFR Part 15. Optional DALI D4i certified LED drivers also available, which complies with IEC 62386 and ANSI C137.4 and DiIA. Standard 3-position straight terminal block accommodates 6 to 16 AWG wire. Standard surge protection (10kV/5kA) complies with IEEE/ANSI C62.41 and ANSI C136.2-2015. Optional 'SP2' and 'LSSP2' provides (20kV/10kA) extreme level surge protection.

Field Adjustability

Optional Field Adjustable Performance Selector 'PS' is an integral 8-step fixed position dial allowing field adjustable lumen and wattage dimming control for added project and design versatility to meet installation specific requirements. The specified Performance Code provides maximum lumen output and will be factory set when the 'PS' option is selected. Only compatible KarbonCobra standard 0-10V drivers. Not compatible with 'D4i' DALI driver option.

Controls

Standard ANSI C136.41 7-wire controls ready receptacle is compatible with shorting cap (SC), photocell (LLPCMV/LLPCHV), wireless control module/node by others and LEOTEK's smart lighting control solutions (contact factory for details and availability). All 7-wire photocontrol receptacles have tool-less rotatable bases with a positive lock to not allow for over-rotation and possible damage to the receptacle. Optional DALI D4i driver configurations are also available for added controllability and design flexibility. DALI compatible 'TLR4U' and 'TLR4L' 4-PIN twist lock receptacle options available (wireless DALI control nodes or sensors by others).

Quality Control

Every luminaire is assembled in the USA and is performance tested before and after a 2-hour burn-in period.

Finish

Housing receives a fade and abrasion resistant polyester powder coat finish with 3.0 mil nominal thickness. Finish tested to withstand 5000 hours in salt spray exposure per ASTM B117 and Coastal Finish per ASTM G85. 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. IP54 rating is optional. Luminaires are qualified to operate at ambient temperatures of -40°C to 50°C (-40°F to 122°F), some performance codes are qualified to operate at ambient temperatures of -40°C to 40°C (-40°F to 104°F), see details on page 3 and page 4.

Warranty

10-year limited warranty is standard on luminaire and components. See LEOTEK.com for warranty details, terms and conditions.

Standards

Luminaire complies with: ANSI: C136.2, C136.3, C136.10, C136.13, C136.15, C136.22, C136.31, C136.35, C136.37, C136.41, C62.41, C78.377, C82.77 Other: FCC 47 CFR, IEC 60598, ROHS II, UL 1449, UL 1598.

Vandal Resistance

Housing and optics rated to IK10.

Color Specifications

Order Code	Color	RAL #	Pantone Equivalent
GY	Gray	7040	429C
BK	Black	9004	BLACK 6C
DB1	Dark Bronze	8019	412

TM21 Lumen Maintenance per IEC TM21-11 Calculation

Model Number	50,000 Hours	60,000 Hours	80,000 Hours	100,000 Hours
KC2 72A (P1-P20)	94%	93%	91%	89%
KC2 72A (P21-P26)	92%	91%	89%	87%

Nominal Performance Data 2200K (22K7) (2R optic, 70CRI, standard IK10 rated lens)

All data shown is nominal. Normal tolerance +/- 10% due to factors that include distribution type, LED bin variance and ambient temperatures.

LED Code	Performance Code	System Wattage (W)	Delivered Lumens(Lm) ¹	Efficacy (Lm/W)	WL ² /WL1 ³ Label Wattage	WL1 ³ Label Lumen
72A	P1	74	10733	145	70	11,000
	P2	78	11331	145	80	11,000
	P3	83	11923	144	80	12,000
	P4	87	12506	144	90	13,000
	P5	92	13081	142	90	13,000
	P6	96	13652	142	100	14,000
	P7	101	14215	141	100	14,000
	P8	105	14771	141	110	15,000
	P9	110	15612	142	110	16,000
	P10	113	16211	143	110	16,000
	P11	117	16800	144	120	17,000
	P12	122	17376	142	120	17,000
	P13	126	17925	142	130	18,000
	P14	130	18477	142	130	18,000
	P15	135	19016	141	140	19,000
	P16	139	19544	141	140	20,000
	P17	144	19969	139	140	20,000
	P18 ⁵	150	20632	138	150	21,000
	P19 ⁵	153	21242	139	150	21,000

Nominal Performance Data 2700K (27K7) (2R optic, 70CRI, standard IK10 rated lens)

All data shown is nominal. Normal tolerance +/- 10% due to factors that include distribution type, LED bin variance and ambient temperatures.

LED Code	Performance Code	System Wattage (W)	Delivered Lumens(Lm) ¹	Efficacy (Lm/W)	WL ² /WL1 ³ Label Wattage	WL1 ³ Label Lumen
72A	P1	74	11508	156	70	12,000
	P2	78	12150	156	80	12,000
	P3	83	12785	154	80	13,000
	P4	87	13410	154	90	13,000
	P5	92	14027	152	90	14,000
	P6	96	14639	152	100	15,000
	P7	101	15243	151	100	15,000
	P8	105	15839	151	110	16,000
	P9	110	16740	152	110	17,000
	P10	113	17383	154	110	17,000
	P11	117	18014	154	120	18,000
	P12	122	18632	153	120	19,000
	P13	126	19221	153	130	19,000
	P14	130	19812	152	130	20,000
	P15	135	20391	151	140	20,000
	P16	139	20957	151	140	21,000
	P17	144	21413	149	140	21,000
	P18	150	22123	147	150	22,000
	P19	153	22777	149	150	23,000
	P20	158	23374	148	160	23,000
	P21 ⁵	162	23915	148	160	24,000
	P22 ⁵	167	24398	146	170	24,000

Notes:

1. Nominal lumens. Normal tolerance $\pm 10\%$ due to factors including distribution type, LED bin variance, and ambient temperatures
2. WL- Wattage Label, ANSI C136.15-2015 compliant.
Wattage- is rounded to the nearest value multiples of 10.
3. WL1- Wattage Label, ANSI C136.15-2020 compliant:
Wattage- is rounded to the nearest value multiples of 10.
Lumens- is rounded to the nearest value multiples of 1,000 lumens. (up to 24,000 lumens).
4. Maximum LED drive current is 500mA.
5. Luminaire at this performance code is qualified to operate at ambient temperatures of -40°C to 40°C. (-40°F to 104°F).

Nominal Performance Data 3000K (30K7) (2R optic, 70CRI, standard IK10 rated lens)

All data shown is nominal. Normal tolerance +/- 10% due to factors that include distribution type, LED bin variance and ambient temperatures.

LED Code	Performance Code	System Wattage (W)	Delivered Lumens(Lm) ¹	Efficacy (Lm/W)	WL ² /WL ¹³ Label Wattage	WL ¹³ Label Lumen
72A	P1	74	12414	168	70	12,000
	P2	78	13106	168	80	13,000
	P3	83	13790	166	80	14,000
	P4	87	14465	166	90	14,000
	P5	92	15130	164	90	15,000
	P6	96	15790	164	100	16,000
	P7	101	16441	163	100	16,000
	P8	105	17085	163	110	17,000
	P9	110	18057	164	110	18,000
	P10	113	18751	166	110	19,000
	P11	117	19431	166	120	19,000
	P12	122	20097	165	120	20,000
	P13	126	20732	165	130	21,000
	P14	130	21370	164	130	21,000
	P15	135	21995	163	140	22,000
	P16	139	22605	163	140	23,000
	P17	144	23097	160	140	23,000
	P18	150	23864	159	150	24,000
	P19	153	24569	161	150	24,000
	P20	158	25213	160	160	26,000
	P21	162	25796	159	160	26,000
	P22	167	26317	158	170	26,000
	P23 ⁵	172	26777	156	170	26,000

- Notes:
1. Nominal lumens. Normal tolerance ± 10% due to factors including distribution type, LED bin variance, and ambient temperatures
 2. WL- Wattage Label, ANSI C136.15-2015 compliant.
Wattage- is rounded to the nearest value multiples of 10.
 3. WL1- Wattage Label, ANSI C136.15-2020 compliant:
Wattage- is rounded to the nearest value multiples of 10.
Lumens- is rounded to the nearest value multiples of 1,000 lumens. (up to 24,000 lumens).
is rounded to the nearest value multiples of 2,000 lumens. (from 24,001 – 50,000 lumens).
 4. Maximum LED drive current is 500mA.
 5. Luminaire at this performance code is qualified to operate at ambient temperatures of -40°C to 40°C. (-40°F to 104°F).

Nominal Performance Data 4000K (40K7) / 5000K (50K7) (2R optic, 70CRI, standard IK10 rated lens)

All data shown is nominal. Normal tolerance +/- 10% due to factors that include distribution type, LED bin variance and ambient temperatures.

LED Code	Performance Code	System Wattage (W)	Delivered Lumens(Lm) ¹	Efficacy (Lm/W)	WL ² /WL1 ³ Label Wattage	WL1 ³ Label Lumen
72A	P1	74	12931	175	70	13,000
	P2	78	13652	175	80	14,000
	P3	83	14365	173	80	14,000
	P4	87	15067	173	90	15,000
	P5	92	15761	171	90	16,000
	P6	96	16448	171	100	16,000
	P7	101	17126	170	100	17,000
	P8	105	17797	169	110	18,000
	P9	110	18809	171	110	19,000
	P10	113	19532	173	110	20,000
	P11	117	20241	173	120	20,000
	P12	122	20934	172	120	21,000
	P13	126	21596	171	130	22,000
	P14	130	22261	171	130	22,000
	P15	135	22911	170	140	23,000
	P16	139	23547	169	140	24,000
	P17	144	24059	167	140	24,000
	P18	150	24858	166	150	24,000
	P19	153	25593	167	150	26,000
	P20	158	26263	166	160	26,000
	P21	162	26870	166	160	26,000
	P22	167	27413	164	170	28,000
	P23	172	27893	162	170	28,000
	P24	178	28302	159	180	28,000
	P25 ⁵	181	28651	158	180	28,000
	P26 ⁵	188	28939	154	190	28,000

Notes:

1. Nominal lumens. Normal tolerance $\pm 10\%$ due to factors including distribution type, LED bin variance, and ambient temperatures
2. WL- Wattage Label, ANSI C136.15-2015 compliant.
Wattage- is rounded to the nearest value multiples of 10.
3. WL1- Wattage Label, ANSI C136.15-2020 compliant:
Wattage- is rounded to the nearest value multiples of 10.
Lumens- is rounded to the nearest value multiples of 1,000 lumens. (up to 24,000 lumens).
is rounded to the nearest value multiples of 2,000 lumens. (from 24,001 – 50,000 lumens).
4. Maximum LED drive current is 500mA.
5. Luminaire at this performance code is qualified to operate at ambient temperatures of -40°C to 40°C. (-40°F to 104°F).

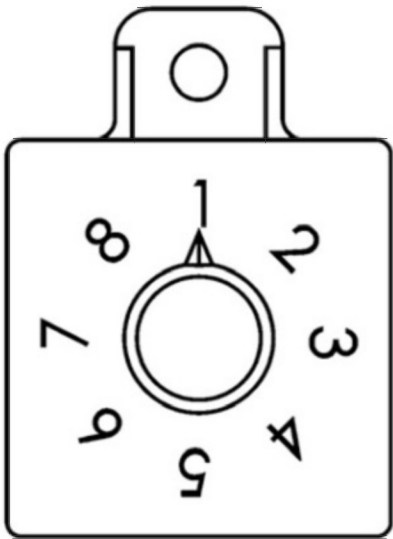
Field Adjustable Performance Selector 'PS'

The optional Performance Selector is an integral dial that allows for field adjustable lumen/wattage dimming control for added design versatility. Normal tolerance +/- 5%. 'PS' dial ships from the factory at the maximum 100% output setting #8 which equals the customer specified Performance Code.

PS Position	Lumen Output %	P1 Wattage	P2 Wattage	P3 Wattage	P4 Wattage	P5 Wattage	P6 Wattage	P7 Wattage	P8 Wattage	P9 Wattage	P10 Wattage
8	100%	74	78	83	87	92	96	101	105	110	113
7	90%	67	70	75	78	83	86	91	95	99	102
6	80%	59	62	66	70	74	77	81	84	88	90
5	70%	52	55	58	61	64	67	71	74	77	79
4	60%	44	47	50	52	55	58	61	63	66	68
3	50%	37	39	42	44	46	48	51	53	55	57
2	40%	30	31	33	35	37	38	40	42	44	45
1	30%	22	23	25	26	28	29	30	32	33	34

PS Position	Lumen Output %	P11 Wattage	P12 Wattage	P13 Wattage	P14 Wattage	P15 Wattage	P16 Wattage	P17 Wattage	P18 Wattage	P19 Wattage	P20 Wattage
8	100%	117	122	126	130	135	139	144	150	153	158
7	90%	105	110	113	117	122	125	130	135	138	142
6	80%	94	98	101	104	108	111	115	120	122	126
5	70%	82	85	88	91	95	97	101	105	107	111
4	60%	70	73	76	78	81	83	86	90	92	95
3	50%	59	61	63	65	68	70	72	75	77	79
2	40%	47	49	50	52	54	56	58	60	61	63
1	30%	35	37	38	39	41	42	43	45	46	47

PS Position	Lumen Output %	P21 Wattage	P22 Wattage	P23 Wattage	P24 Wattage	P25 Wattage	P26 Wattage
8	100%	162	167	172	178	181	188
7	90%	146	150	155	160	163	169
6	80%	130	134	138	142	145	150
5	70%	113	117	120	125	127	132
4	60%	97	100	103	107	109	113
3	50%	81	84	86	89	91	94
2	40%	65	67	69	71	72	75
1	30%	49	50	52	53	54	56



BUG Ratings: 2200K (22K7)

All data nominal. IES files for all CCTs are available at leotek.com.

Product & LED Code	Performance Code	Type 2R	Type 2F	Type 3R	Type 3F	Type 4R	Type 4F	Type 5
		BUG Rating	BUG Rating	BUG Rating	BUG Rating	BUG Rating	BUG Rating	BUG Rating
72A	P1	B2-U0-G2	B2-U0-G3	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3	B4-U0-G3
	P2	B2-U0-G2	B2-U0-G3	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3	B4-U0-G3
	P3	B2-U0-G2	B3-U0-G3	B2-U0-G2	B3-U0-G3	B2-U0-G2	B2-U0-G3	B4-U0-G3
	P4	B2-U0-G2	B3-U0-G3	B2-U0-G2	B3-U0-G3	B2-U0-G2	B2-U0-G3	B4-U0-G3
	P5	B2-U0-G3	B3-U0-G3	B2-U0-G2	B3-U0-G3	B2-U0-G3	B2-U0-G3	B4-U0-G3
	P6	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B2-U0-G3	B4-U0-G3
	P7	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B2-U0-G3	B4-U0-G3
	P8	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B4-U0-G3
	P9	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B4-U0-G3
	P10	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B4-U0-G3
	P11	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B4-U0-G3
	P12	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B5-U0-G3
	P13	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P14	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P15	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P16	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P17	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P18	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P19	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G4



KarbonCobra LED Streetlight Series

KC2 Specification Data Sheet

BUG Ratings: 2700K (27K7)

All data nominal. IES files for all CCTs are available at leotek.com.

		Type 2R	Type 2F	Type 3R	Type 3F	Type 4R	Type 4F	Type 5
Product & LED Code	Performance Code	BUG Rating	BUG Rating	BUG Rating	BUG Rating	BUG Rating	BUG Rating	BUG Rating
72A	P1	B2-U0-G2	B3-U0-G3	B2-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G3	B4-U0-G3
	P2	B2-U0-G2	B3-U0-G3	B2-U0-G2	B3-U0-G3	B2-U0-G2	B2-U0-G3	B4-U0-G3
	P3	B2-U0-G2	B3-U0-G3	B2-U0-G2	B3-U0-G3	B2-U0-G2	B2-U0-G3	B4-U0-G3
	P4	B3-U0-G3	B3-U0-G3	B2-U0-G2	B3-U0-G3	B2-U0-G3	B2-U0-G3	B4-U0-G3
	P5	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B2-U0-G3	B4-U0-G3
	P6	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B2-U0-G4	B4-U0-G3
	P7	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B4-U0-G3
	P8	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B4-U0-G3
	P9	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B4-U0-G3
	P10	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B5-U0-G3
	P11	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P12	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P13	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P14	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P15	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P16	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G4
	P17	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G4
	P18	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G5	B5-U0-G4
	P19	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P20	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P21	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P22	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4

BUG Ratings: 3000K (30K7)

All data nominal. IES files for all CCTs are available at leotek.com.

		Type 2R	Type 2F	Type 3R	Type 3F	Type 4R	Type 4F	Type 5
Product & LED Code	Performance Code	BUG Rating	BUG Rating	BUG Rating	BUG Rating	BUG Rating	BUG Rating	BUG Rating
72A	P1	B2-U0-G2	B3-U0-G3	B2-U0-G2	B3-U0-G3	B2-U0-G2	B2-U0-G3	B4-U0-G3
	P2	B2-U0-G3	B3-U0-G3	B2-U0-G2	B3-U0-G3	B2-U0-G3	B2-U0-G3	B4-U0-G3
	P3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B2-U0-G3	B4-U0-G3
	P4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B2-U0-G3	B4-U0-G3
	P5	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B4-U0-G3
	P6	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B4-U0-G3
	P7	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B4-U0-G3
	P8	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B4-U0-G3
	P9	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P10	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P11	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P12	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P13	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P14	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G4
	P15	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G5	B5-U0-G4
	P16	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G5	B5-U0-G4
	P17	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P18	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P19	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P20	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P21	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P22	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P23	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4

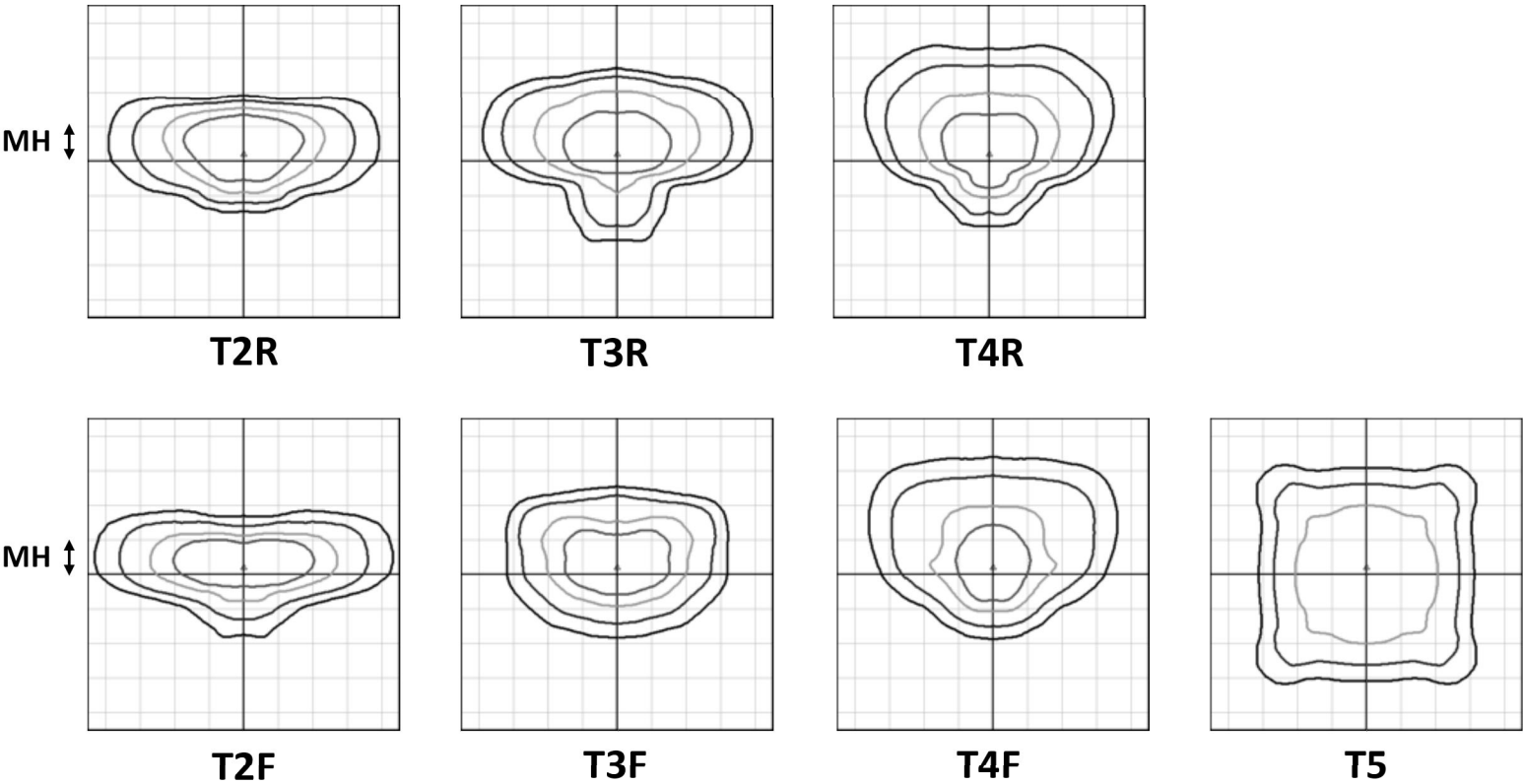
BUG Ratings: 4000K (40K7) / 5000K (50K7)

All data nominal. IES files for all CCTs are available at leotek.com.

Product & LED Code	Performance Code	Type 2R	Type 2F	Type 3R	Type 3F	Type 4R	Type 4F	Type 5
		BUG Rating	BUG Rating	BUG Rating	BUG Rating	BUG Rating	BUG Rating	BUG Rating
72A	P1	B2-U0-G2	B3-U0-G3	B2-U0-G2	B3-U0-G3	B2-U0-G3	B2-U0-G3	B4-U0-G3
	P2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B2-U0-G3	B4-U0-G3
	P3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B2-U0-G3	B4-U0-G3
	P4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B4-U0-G3
	P5	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B4-U0-G3
	P6	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B4-U0-G3
	P7	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B4-U0-G3
	P8	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B2-U0-G3	B3-U0-G4	B5-U0-G3
	P9	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P10	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P11	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G3
	P12	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G4
	P13	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G4	B5-U0-G4
	P14	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G5	B5-U0-G4
	P15	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P16	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P17	B3-U0-G3	B3-U0-G4	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P18	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P19	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P20	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P21	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P22	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P23	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P24	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P25	B3-U0-G3	B4-U0-G4	B3-U0-G4	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4
	P26	B3-U0-G3	B4-U0-G5	B3-U0-G4	B3-U0-G3	B3-U0-G4	B3-U0-G5	B5-U0-G4

Optical Distribution

(Each square block represents one mounting height, MH)



MH = 40ft

- 0.1 Fc
- 0.2 Fc
- 0.5 Fc
- 1.0 Fc

Motion Sensor (Optional) Specifications*

'ZMSL2', or 'ZMSL7' 4 pin (for Zhaga Book 18 installation) motion sensor option require both "D4i" DALI driver option and 'TLR4L' D4i DALI 4-PIN twist lock receptacle (bottom) to be selected. Top receptacle for use with wireless DALI control node (by LEO TEK or others).

Description

Digital passive infrared luminaire 4-PIN outdoor occupancy sensor provides high/low/off control based on motion detection. Initial setup and subsequent sensor adjustments are made using the iOS or Android Sensor Configuration App (search for Wattstopper Sensor Configuration App) or through compatible DALI devices and outdoor lighting controllers conforming to Zhaga or DiiA standards (103 and 303*) remotely. Available with both MV or HV input voltage options.

Operation

Standard factory setting will dim the luminaire to 50% until motion is sensed and then it will power to 100%. When motion is not detected for five minutes, the luminaire will dim back to 50%. Ramp up and fade down times are adjustable, but initially set to NONE. The percent dimming and time durations may be field adjusted using the iOS or Android Sensor Configuration App by Bluetooth* low energy technology commissioning (search for Wattstopper Sensor Configuration App) or through compatible DALI devices and outdoor lighting controllers conforming to Zhaga or DiiA standards (103 and 303**) remotely.

*Devices with Bluetooth 5.0, iPhone 8 and Samsung Galaxy S8 and later devices are recommended for optimal performance.

**DALI 303 features are continually released. Please consult Wattstopper for a list of current features.

Optical System

Multi-cell, multi-tier Fresnel lens with a 360 degree view detects unobstructed motion within one mounting height, up lens configurations for 8-15 ft. ('ZMSL2') or up to 40 ft. ('ZMSL7'). Consult factory for higher mounting height requirements.

Finish

Sensor exterior ring and lens are gray polycarbonate, UV and impact resistant.

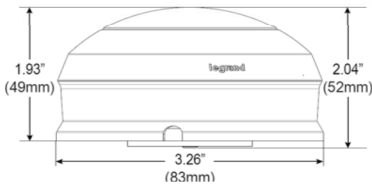
Listings/Ratings

Sensor is UL and cUL listed(E101196), IP65 rated and CE compliant.

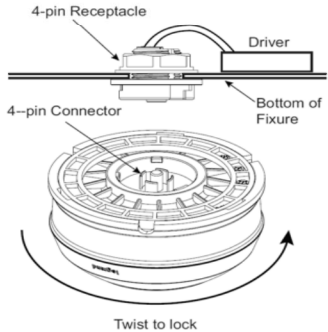
Warranty

5-year limited warranty on luminaires and components with a motion sensor.

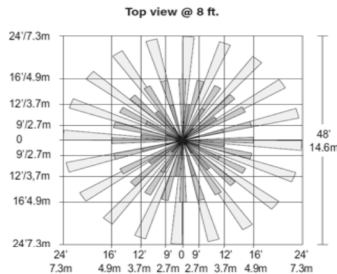
ZMSL2/ZMSL7 Dimensions



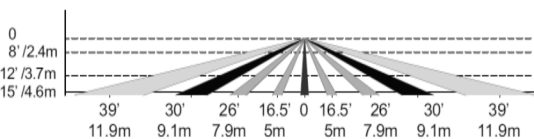
ZMSL2/ZMSL7 Installation



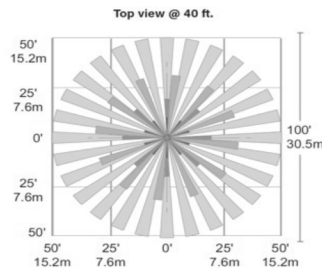
L2 Lens Coverage Top View



L2 Lens Coverage Side View



L7 Lens Coverage Top View



L7 Lens Coverage Side View

