



Lumec RoadFocus LED reduced glare cobra head luminaires provide the benefits of LED technology, including energy savings and lower maintenance costs yet minimizes perceived glare and brightness associated with LED technology without sacrificing performance required for optimum roadway applications. Includes Service Tag, innovative way to provide assistance throughout the life of the product.

Project: _____
 Location: _____
 Cat.No: _____
 Type: _____
 Lumens: _____ Qty: _____
 Notes: _____

Ordering guide

example: RFL-RG-230W128LED4K-G2-R2/3M-UNV-DMG-RCD7-GY3

Series	Application	LED module	CCT	Generation	Distribution	Voltage	Options		Finish
							Controls ⁴	Options	
RFL	RG			G2	R2/3M				
RFL RoadFocus large	RG Reduced glare	155W128LED 195W128LED 230W128LED 255W128LED 260W128LED 295W128LED 300W128LED 325W128LED 160W160LED 185W160LED 270W160LED 310W160LED 160W192LED 195W192LED 220W192LED 230W192LED 260W192LED 300W192LED 340W192LED	4K 4000K 3K 3000K 2.7K ¹¹ 2700K	G2 Generation 2	R2/3M Type II-III Medium (ASYM)	UNV 120-277V HVV 347-480V	D41 ¹⁴ Zhaga-D4i certified DALI Digitally addressable lighting interface DMG ⁵ 0-10V SRD Sensor ready driver, standard configuration SRD1 Sensor ready driver, alternate configuration	API Factory installed NEMA label, ANSI C136.15-2015 compliant FAWS ⁷ Field adjustable wattage selector FSS ^{2,13} Front Side Shield HS ^{2,13} House Side Shield NRC ⁹ No receptacle NYBC 4-position terminal block OMS ¹⁵ Outdoor Multi Sensor PH8 ^{1,10} Twist-lock photoelectric cell, UNV (120-277VAC) PH8/347 ^{10,12} Twist-lock photoelectric cell (347VAC) PH8/480 ^{10,12} Twist-lock photoelectric cell (480VAC) PHXL ^{1,10} Twist-lock photoelectric cell, extended life, UNV (120-277VAC) PH9 ¹⁰ Shorting cap RCD ^{3,9} Tool less receptacle for twist- lock photocell or shorting cap, 5-pin (optional) RCD7 ^{3,5} Tool less receptacle for twist- lock photocell or shorting cap, 7-pin (standard) SP2 20kV / 10kA Surge protector TLRSR ⁶ SR receptacle BAC ¹⁶ Meets the requirements of the Buy American Act of 1933 (BAA)	BK Black BR Bronze GY3 Gray WH White

¹ Not available with HVU.
² Refer to Accessories section to confirm compatibility of shields with optical distribution.
³ Use of photoelectric cell or shorting cap is required to ensure proper illumination.
⁴ Select one mandatory option.
⁵ Please note this integrated feature come standard with RoadFocus.
⁶ Only available with SRD or SRD1 Driver Options.
⁷ Only available with DMG Driver Options.
⁸ Not available with PH8, PH8/347, PH8/480, PHXL, PH9, DALI, SRD or SRD1 Driver Options.
⁹ Not available with SRD Driver Options.
¹⁰ Either RCD or RCD7 must be selected for this option.
¹¹ Extended lead-time may apply. Consult factory.
¹² Not available with UNV.
¹³ 1 shield provided per LED light engine.
¹⁴ TLRSR must be selected with D41
¹⁵ TLRSR and D41 must be selected with OMS
¹⁶ Failure to properly select the "BAC" suffix could result in you receiving product that is not BAA compliant product with no recourse for an RMA or refund. This BAC designation hereunder does not address (i) the applicability of, or availability of a waiver under, the Trade Agreements Act, or (ii) the "Buy America" domestic content requirements imposed on states, localities, and other non-federal entities as a condition of receiving funds administered by the Department of Transportation or other federal agencies.
¹⁷ Consult Signify to confirm whether specific accessories are BAA-compliant.

Accessories¹⁷ (must be ordered as separate line item - quickly and easily installed in the field)

Interact City connector node (Contact the factory for additional support when connected lighting or additional services are desired.)

Shielding accessories

Description	Luminaire Option Code	Accessory Ordering Code
		32 LED version*
Front side shield	FSS	ACC-LG66V32LED-FSS
House side shield	HS	ACC-LG66V32LED-HS

*Refer to Wattage table to confirm light engine configuration. Example, if configuration is 2x32LED, 2 of the desired shields must be ordered per luminaire.



RFL-RG RoadFocus reduced glare

LED Cobra head (large)

Predicted Lumen Depreciation Data

Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions. L70 is the predicted time when LED performance depreciates to 70% of initial lumen output. Calculated per IESNA TM21-11 Addendum B. Published L70 hours limited to 6 times actual LED test hours.

Ambient Temperature °C	L70 per TM-21	Lumen Maintenance % at 78,000 hrs
25°C	>78,000 hours	>94.2%

LED Wattage values

Ordering Code	Total LEDs	Light Engine Configuration	Average System Watts ¹	Wattage label ²
RFL-RG-155W128LED	128	4x32LED	150	150
RFL-RG-195W128LED	128	4x32LED	189	190
RFL-RG-255W128LED	128	4x32LED	251	250
RFL-RG-230W128LED	128	4x32LED	225	230
RFL-RG-260W128LED	128	4x32LED	255	260
RFL-RG-295W128LED	128	4x32LED	290	290
RFL-RG-300W128LED	128	4x32LED	295	300
RFL-RG-325W128LED	128	4x32LED	321	320
RFL-RG-160W160LED	160	5x32LED	157	160
RFL-RG-185W160LED	160	5x32LED	182	180
RFL-RG-195W160LED	160	5x32LED	195	190
RFL-RG-220W160LED	160	5x32LED	220	220
RFL-RG-230W160LED	160	5x32LED	228	230
RFL-RG-260W160LED	160	5x32LED	259	260

Ordering Code	Total LEDs	Light Engine Configuration	Average System Watts ¹	Wattage label ²
RFL-RG-270W160LED	160	5x32LED	265	270
RFL-RG-310W160LED	160	5x32LED	304	300
RFL-RG-160W192LED	192	6x32LED	157	160
RFL-RG-185W192LED	192	6x32LED	187	190
RFL-RG-195W192LED	192	6x32LED	193	190
RFL-RG-220W192LED	192	6x32LED	215	220
RFL-RG-230W192LED	192	6x32LED	225	230
RFL-RG-260W192LED	192	6x32LED	255	260
RFL-RG-295W192LED	192	6x32LED	290	290
RFL-RG-300W192LED	192	6x32LED	297	300
RFL-RG-340W192LED	192	6x32LED	337	340

1. Typical values, rounded.

2. As per ANSI C136.15-2015. Consult factory for other labeling needs.

4000K LED Lumen values

Ordering Code	Color Temp.	Type R2M/3M		
		Lumen Output	Efficacy (LPW)	BUG Rating
RFL-RG-155W128LED	4000	24106	161	B4-U0-G3
RFL-RG-195W128LED	4000	29004	153	B4-U0-G3
RFL-RG-255W128LED	4000	36965	147	B4-U0-G3
RFL-RG-230W128LED	4000	33903	151	B4-U0-G3
RFL-RG-260W128LED	4000	37577	147	B4-U0-G4
RFL-RG-295W128LED	4000	41251	142	B4-U0-G4
RFL-RG-300W128LED	4000	42231	143	B4-U0-G4
RFL-RG-325W128LED	4000	45416	141	B5-U0-G4
RFL-RG-160W160LED	4000	25999	166	B4-U0-G3
RFL-RG-185W160LED	4000	28908	159	B4-U0-G3
RFL-RG-195W160LED	4000	30132	155	B4-U0-G3
RFL-RG-220W160LED	4000	33654	153	B4-U0-G3
RFL-RG-230W160LED	4000	34725	152	B4-U0-G3
RFL-RG-260W160LED	4000	38400	148	B4-U0-G4
RFL-RG-270W160LED	4000	39624	150	B4-U0-G4
RFL-RG-310W160LED	4000	44522	146	B4-U0-G4
RFL-RG-160W192LED	4000	27157	173	B4-U0-G3
RFL-RG-185W192LED	4000	30280	162	B4-U0-G3
RFL-RG-195W192LED	4000	31382	163	B4-U0-G3
RFL-RG-220W192LED	4000	35056	163	B4-U0-G3
RFL-RG-230W192LED	4000	36159	161	B4-U0-G3
RFL-RG-260W192LED	4000	39833	156	B4-U0-G4
RFL-RG-295W192LED	4000	43874	151	B4-U0-G4
RFL-RG-300W192LED	4000	44609	150	B4-U0-G4
RFL-RG-340W192LED	4000	49386	147	B5-U0-G4

3000K LED Lumen values

Ordering Code	Color Temp.	Type R2M/3M		
		Lumen Output	Efficacy (LPW)	BUG Rating
RFL-RG-155W128LED	3000	22958	153	B3-U0-G2
RFL-RG-195W128LED	3000	27623	146	B4-U0-G3
RFL-RG-255W128LED	3000	35205	140	B4-U0-G3
RFL-RG-230W128LED	3000	32289	144	B4-U0-G3
RFL-RG-260W128LED	3000	35788	140	B4-U0-G3
RFL-RG-295W128LED	3000	39287	135	B4-U0-G4
RFL-RG-300W128LED	3000	40220	136	B4-U0-G4
RFL-RG-325W128LED	3000	43253	135	B4-U0-G4
RFL-RG-160W160LED	3000	24761	158	B4-U0-G3
RFL-RG-185W160LED	3000	27531	151	B4-U0-G3
RFL-RG-195W160LED	3000	28697	147	B4-U0-G3
RFL-RG-220W160LED	3000	32051	146	B4-U0-G3
RFL-RG-230W160LED	3000	33071	145	B4-U0-G3
RFL-RG-260W160LED	3000	36571	141	B4-U0-G3
RFL-RG-270W160LED	3000	37737	142	B4-U0-G3
RFL-RG-310W160LED	3000	42402	139	B4-U0-G4
RFL-RG-160W192LED	3000	25864	165	B4-U0-G3
RFL-RG-185W192LED	3000	28838	154	B4-U0-G3
RFL-RG-195W192LED	3000	29888	155	B4-U0-G3
RFL-RG-220W192LED	3000	33387	155	B4-U0-G3
RFL-RG-230W192LED	3000	34437	153	B4-U0-G3
RFL-RG-260W192LED	3000	37936	149	B4-U0-G3
RFL-RG-295W192LED	3000	41785	144	B4-U0-G4
RFL-RG-300W192LED	3000	42485	143	B4-U0-G4
RFL-RG-340W192LED	3000	47034	140	B5-U0-G4

2700K LED Lumen values

Ordering Code	Color Temp.	Type R2M/3M		
		Lumen Output	Efficacy (LPW)	BUG Rating
RFL-RG-155W128LED	2700	20662	138	B3-U0-G2
RFL-RG-195W128LED	2700	24861	132	B4-U0-G3
RFL-RG-255W128LED	2700	31685	126	B4-U0-G3
RFL-RG-230W128LED	2700	29060	129	B4-U0-G3
RFL-RG-260W128LED	2700	32209	126	B4-U0-G3
RFL-RG-295W128LED	2700	35358	122	B4-U0-G3
RFL-RG-300W128LED	2700	36198	123	B4-U0-G3
RFL-RG-325W128LED	2700	38928	121	B4-U0-G3
RFL-RG-160W160LED	2700	22285	142	B3-U0-G2
RFL-RG-185W160LED	2700	24778	136	B4-U0-G3
RFL-RG-195W160LED	2700	25827	133	B4-U0-G3
RFL-RG-220W160LED	2700	28846	131	B4-U0-G3
RFL-RG-230W160LED	2700	29764	130	B4-U0-G3
RFL-RG-260W160LED	2700	32914	127	B4-U0-G3
RFL-RG-270W160LED	2700	33963	128	B4-U0-G3
RFL-RG-310W160LED	2700	38162	126	B4-U0-G3
RFL-RG-160W192LED	2700	23278	148	B3-U0-G2
RFL-RG-185W192LED	2700	25954	139	B4-U0-G3
RFL-RG-195W192LED	2700	26899	139	B4-U0-G3
RFL-RG-220W192LED	2700	30048	140	B4-U0-G3
RFL-RG-230W192LED	2700	30993	138	B4-U0-G3
RFL-RG-260W192LED	2700	34142	134	B4-U0-G3
RFL-RG-295W192LED	2700	37607	130	B4-U0-G3
RFL-RG-300W192LED	2700	38237	129	B4-U0-G3
RFL-RG-340W192LED	2700	42331	126	B4-U0-G4

Actual performance may vary due to installation variables including optics, mounting/ceiling height, dirt depreciation, light loss factor, etc.; highly recommended to confirm performance with a layout - contact Applications at signify.com/outdoorluminaires. Consult DLC QPL to confirm your specific fixture selection is DLC approved.

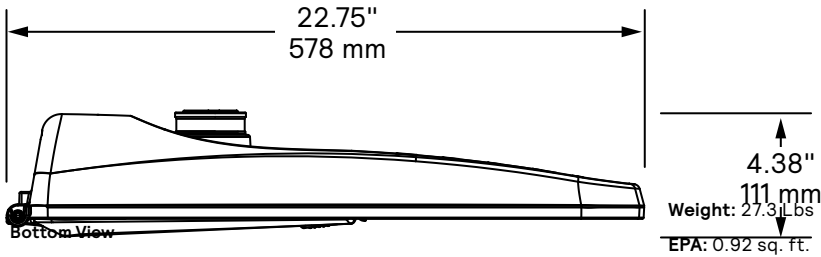
Note: Some data may be scaled based on tests of similar but not identical luminaires.

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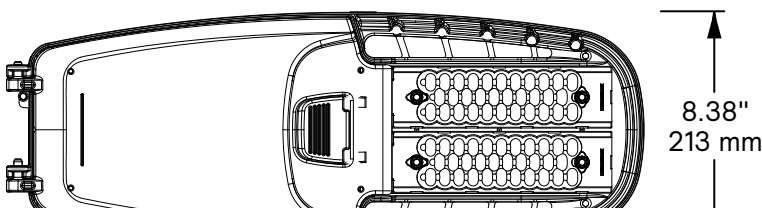
LED Cobra head (large)

Dimensions

Side View



Bottom View



Field Adjustable Wattage (FAWS) Multiplier Chart

FAWS Position	Typical Delivered Lumens Multiplier	Typical System wattage
1	0.31	0.28
2	0.53	0.50
3	0.62	0.58
4	0.70	0.67
5	0.78	0.75
6	0.83	0.81
7	0.89	0.87
8	0.92	0.91
9	0.96	0.95
10	1.00	1.00

Note: Typical value accuracy +/- 5%

Specifications

Housing

Made of a low copper die cast Aluminum alloy (A360), 0.100" (2.5mm) minimum thickness. Fits on a 1.66" (42mm) O.D. (1.25" NPS), 1.9" (48mm) O.D. (1.5" NPS) or 2 3/8" (60mm) O.D. (2" NPS) by 5 1/2" (140mm) minimum long tenon. Comes with 2 zinc plated clamps fixed by 4 zinc plated hexagonal bolts 3/8 16 UNC for ease of installation. Provides an easy step adjustment of +/- 5° tilt in 2.5° increments. Includes integral bubble level standard (always included). A quick release, tool less entry, single latch, hinged, removable door opens downward to provide access to electronic components and to a terminal block. Door is secured to prevent accidental dropping or disengagement. A clearance of 13" (330mm) at the rear is required in order to remove the door. Complete with a bird guard protecting against birds and similar intruders and an ANSI label as per C136.15-2015 to identify wattage and source (both included in box). Housing (including electrical compartment) rated IP54 per ANSI C136.37.

Light Engine

Composed of 4 main components: LED Module / Optical System / Heat Sink / Driver.

Electrical components are RoHS compliant, IP66 sealed light engine LEDs tested by ISO 17025-2005 accredited lab in accordance with IESNA LM-80 guidelines in compliance with EPA ENERGY STAR, extrapolations in accordance with IESNA TM-21. Metal core board ensures greater heat transfer and longer lifespan.

LED Module: Composed of high-performance white LEDs. Color temperature as per ANSI/ NEMA bin 2700 Kelvin nominal (2725 ±145K), 3000 Kelvin nominal (3045K +/- 175K) or 4000 Kelvin nominal (3985K +/- 275K), CRI 70 Min. 75 Typical. Other CCT/CRI also available, consult factory.

Optical System: Composed of high performance UV stabilized optical grade polymer refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. System is rated IP66. Performance shall be tested per LM-63, LM-79 and TM-15 (IESNA) certifying its photometric performance. 0% uplight and U0 per IESNA TM-15.

Heat Sink: Built in the housing, designed to ensure high efficacy and superior cooling by natural vertical convection air flow pattern always close to LEDs and driver optimising their efficiency and life. Product does not use any cooling device with moving parts (only passive cooling). Wide openings enable natural cleaning and removal of dirt and debris. Entire luminaire is rated for operation in ambient temperature of -40°C / -40°F up to +50°C / +122°F unless otherwise specified, refer to LED Wattages Values Table.

Driver: High power factor of 90% min. Electronic driver, operating range 50/60 Hz. Auto adjusting universal voltage input from 120 to 277 or 347 to 480 VAC rated for both application line to line or line to neutral, Class I, THD of 20% max. 1 driver (64 LED); 2 drivers (all others).

DMG: Dimming compatible 0-10 volts. The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built in driver surge protection of 2.5kV (min).

Integrated Features

DMG: Dimmable driver 0-10V.

RCD7*: Receptacle with 7 pins enabling dimming and additional functionality (to be determined), can be used with a twist lock Interact City node or photoelectric cell or a shorting cap.

SP1: Surge protection device tested in accordance with ANSI/IEEE C62.45 per ANSI/ IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground, and in accordance with DOE MSSLC Model Specification for LED Roadway Luminaires Appendix D Electrical Immunity High test level 10kV/10kA.

Please note that these integrated features always come with RoadFocus luminaire.

* Use of photoelectric cell or shorting cap is required to ensure proper illumination.

Driver and Luminaire Options

D4i: Zhaga-D4i certified fixture

DALI*: Pre-set driver compatible with the DALI control system.

SRD: Sensor Ready Driver including SR communication (used for dimming and other functionalities), 24V auxiliary supply and a logical signal input (LSI) connected to the top NEMA twist lock receptacle and bottom TLRSR receptacle, if this option included/ chosen. This configuration is compatible with Interact City controllers.

SRD1: Sensor Ready Driver including SR communication (used for dimming and other functionalities) but with 24V auxiliary supply and a logical signal input (LSI) not connected to the top NEMA twist lock. If TLRSR receptacle option included, standard SR communication, 24V auxiliary supply and LSI are connected to the TLRSR receptacle.

OMS: Outdoor Multi Sensor

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LED Cobra head (large)

Specifications (continued)

FAWS: Field Adjustable Wattage Selector, pre-set to the highest position, can be easily switched in the field to the required position. This reduces total luminaire wattage consumption and reduces the light level – see the FAWS multiplier chart for more details.

Note: It is not recommended to use FAWS with other dimming or controls; if you do, set the switch to position 10 (maximum output) to enable the other dimming or controls. Switching FAWS to any position other than 10 will disable the other dimming or controls.

SP2: 20kV / 10kA surge protection device that provides extra protection beyond the SP1 10kV/10kA level.

NRC: No receptacle. Fixture is shipped with a cap instead of a receptacle.

NYBC: 4 – position terminal block.

RCD*: Receptacle with 5 pins enabling dimming, can be used with a twist lock Interact City or photoelectric cell or a shorting cap.

TLRSR: SR Sensor connector, installed in fixture door. Shipped with protective cover.

PH8: Twist-lock photoelectric cell, UNV (120-277VAC).

PH8/347: Twist-lock photoelectric cell, HVU (347VAC).

PH8/480: Twist-lock photoelectric cell, HVU (480VAC).

PHXL: Twist-lock photoelectric cell, extended life, UNV (120-277VAC).

PH9: Shorting cap.

API: Factory Installed NEMA label, ANSI C136.15-2015 compliant. Consult factory for other labeling needs.

* Use of photoelectric cell or shorting cap is required to ensure proper illumination.

Factory Installed Shield Options (One per Light Engine)

CSS: Cul-de-Sac Shield. Shields light output on the left and right side of fixture.

FSS: Front Side Shield. Shields light output on the front side of fixture.

HS: House Side Shield. Shields light output to the back side of fixture.

LSS: Left Side Shield. Shields light output on the left side of fixture.

RSS: Right Side Shield. Shields light output on the right side of fixture.

Luminaire Useful Life

Refer to IES files for energy consumption and delivered lumens for each option. Based on ISTMT in situ thermal testing in accordance with UL1598 and UL8750, System Reliability Tool, Advance data and LED manufacturer LM-80/TM-21 data, expected to reach 100,000 + hours with >L70 lumen maintenance @ 25°C. Luminaire Useful Life accounts for LED lumen maintenance AND all of these additional factors including: LED life, driver life, PCB substrate, solder joints, on/off cycles, burning hours and corrosion.

Wiring

The connection of the luminaire is done using a terminal block connector 600V, 85A for use with #2 14 AWG. wires from the primary circuit, located inside the housing. Due to the inrush current that occurs with electronic drivers, recommend using a 10Amp time-delay fuse to avoid unwanted fuse blowing (false tripping) that can occur with normal or fast acting fuses.

Hardware

All exposed screws shall be complete with Ceramic primer seal to reduce seizing of the parts, also offers a high resistance to corrosion. All seals and sealing devices are made and/or lined with EPDM and/or silicone and/or rubber.

Finish

Color in accordance with the AAMA 2603 standard. Application of polyester powder coat paint (4 mils/100 microns) with ± 1 mils/24 microns of tolerance. The Thermosetting resins provides a discoloration resistant finish in accordance with the ASTM D2244 standard, as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard.

The surface treatment achieves a minimum of 5000 hours for salt spray resistant finish in accordance with testing performed and per ASTM B117 standard.

LED products manufacturing standard

The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with IEC61340-5-1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

Vibration Resistance

The RFL meets the ANSI C136.31-2018, American National Standard for Roadway Luminaire Vibration specifications for Bridge/overpass applications. (Tested for 3G over 100,000 cycles by independent lab)

Certifications and Compliance

cULus Listed for Canada and USA. Luminaire meets DOE and MSSLC Model Specification for LED Roadway Luminaires. Most versions of RoadFocus LED Cobrahead luminaires are DesignLights Consortium qualified, consult DLC QPL to confirm your specific fixture selection is approved. CCTs 3000K and warmer are Dark Sky Approved. Luminaire complies with or exceeds the following ANSI C136 standards: .2, .3, .10, .14, .15, .22, .25, .31, .37, .41.

Service Tag

Each individual luminaire is uniquely identifiable, thanks to the Service tag application. With a simple scan of a QR code, placed on the inside of the mast door, you gain instant access to the luminaire configuration, making installation and maintenance operations faster and easier, no matter what stage of the luminaire's lifetime. Just download the APP and register your product right away.

For more details visit: philips.com/servicetag

Limited Warranty

10-year limited warranty.
See signify.com/warranties for details and restrictions.

Brackets/Arms

For brackets / arms available with this luminaire, see Lumec 3D for details.

