



The **Gardco EcoForm Gen-2 luminaire** features narrow spectrum amber LEDs combined with special shielding, making it a wildlife friendly lighting solution. EcoForm features an innovative retrofit arm kit, simplifying site conversions to LED by eliminating the need to drill additional holes in most existing poles. Integral control systems available for further energy savings.

Project: _____

Location: _____

Cat.No: _____

Type: _____

Qty: _____

Notes: _____

Ordering guide

example: ECF-S-64L-600-AM-G2-AR-5-120-FWC-MGY

Prefix	Number of LEDs	Drive Current	LED Color - Generation	Mounting	Distribution	Voltage
ECF-S			AM-G2			
ECF-S EcoForm site and area, wildlife	32L 32 LEDs (2 modules) 48L 48 LEDs (3 modules) 64L 64 LEDs (4 modules)	400 400mA 600 600mA	AM-G2 Direct Amber, nominal 590nm narrow spectrum LED Generation 2	AR² Arm Mount (standard) The following mounting kits must be ordered separately (See accessories) WS Wall mount with surface conduit rear entry permitted RAM² Retrofit arm mount kit	Type 2 2 Type 2 Type 3 3 Type 3 Type 4 4 Type 4 Type 5 5 Type 5 5W Type 5W	120 120V 208 208V 240 240V 277 277V 347 347V 480 480V UNV 120-277V (50/60Hz) HVU 347-480V (50/60Hz)

Options						
Dimming controls	Motion sensing lens	Photo-sensing	Electrical	Luminaire	Finish	
DD⁴ 0-10V External dimming (for controls by others) FAWS^{4,5} Field Adjustable Wattage Selector BL^{1,4,14} Bi-level functionality DynaDimmer: Automatic Profile Dimming CS50^{4,8} Safety 50% Dimming, 7 hours CM50^{4,8} Median 50% Dimming, 8 hours CS30^{4,8} Safety 30% Dimming, 7 hours CM30^{4,8} Median 30% Dimming, 8 hours	IMRI3¹³ Integral with #3 lens IMRI7¹³ Integral with #7 lens	PCB^{8,9} Photocontrol Button TLRD5¹⁰ Twist Lock Receptacle 5 Pin TLRD7¹⁰ Twist Lock Receptacle 7 Pin TLRPC¹¹ Twist Lock Receptacle w/ Photocell	Fusing F1⁹ Single (120, 277, 347VAC) F2⁹ Double (208, 240, 480VAC) Pole Mount Fusing FP1⁹ Single (120, 277, 347VAC) FP2⁹ Double (208, 240, 480VAC) FP3⁹ Canadian Double Pull (208, 240, 480VAC) Surge Protection (10kA standard) SP2 Increased 20kA	Square Pole Adapter included in standard product TB Terminal Block RPA¹² Round Pole Adapter (fits to 3"- 3.9" O.D. pole) FWC³ Wildlife Friendly External House side shield	Textured BK Black WH White BZ Bronze DGY Dark Gray MGY Medium Gray Customer specified RAL Specify optional color or RAL (ex: RAL7024) CC Custom color (Must supply color chip for required factory quote)	

- BL-IMRI3/7 equipped with out-boarded sensor housing when voltage is HVU (347-480V)
- Mounts to a 4" round pole with adapter included for square poles.
- Limited to a maximum of 45 degrees aiming above horizontal.
- Not available with other dimming control options.
- Not available with motion sensor.
- Not available with photocontrol.
- Must specify a motion sensor lens.
- Not available in 347 or 480V
- Must specify input voltage.
- TLRD5, TLRD7 and TLRPC receptacle pins 4 & 5 are capped off when ordered with any of the Dimming controls DD or FAWS or LLC.
- Not available in 480V. Order photocell separately with TLRD5/7.
- Not available with DCC.
- Not available with SF and WS. RPAs provided with black finish standard.
- HIS not available with Type 5, 5W, BLC, BLC-90, BLC-270, LCL or RCL optics.
- Not available with DD, DCC, and FAWS dimming control options.
- Not available with DD, DCC, FAWS and LLC dimming control options.
- When ordering SRDR, controller (by others) to be used on socket must be SR compatible (See specifications for more details). Consult factory for lead time. All 7 pins in NEMA receptacle are connected to SR driver. SRDR not available with TLRD5 or TLRPC.
- 0-10V dimming driver standard.
- LCL and RCL not available with 48L-1.2A or 64L-1A.



ECF-S EcoForm wildlife

Site & Area

EcoForm Accessories¹ (ordered separately, field installed)

Luminaire Accessories

ECF-BD-G2	Bird deterrent
ECF-RAM-G2-(F)	Retrofit Arm mount kit
ECF-WS-G2-(F)	Wall mount with surface conduit rear entry permitted

EcoForm PTF2
(pole top fitter fits 23/8-21/2" OD x 4" depth tenon)

PTF2-ECF-S/L-1-90-(F)	1 luminaire at 90°
PTF2-ECF-S/L-2-90-(F)	2 luminaires at 90°
PTF2-ECF-S/L-2-180-(F)	2 luminaires at 180°
PTF2-ECF-S/L-3-90-(F)	3 luminaires at 90°
PTF2-ECF-S/L-4-90-(F)	4 luminaires at 90°
PTF2-ECF-S/L-3-120-(F)	3 luminaires at 120°

EcoForm PTF3
(pole top fitter fits 3-31/2" OD x 6" depth tenon)

PTF3-ECF-S/L-1-90-(F)	1 luminaire at 90°
PTF3-ECF-S/L-2-90-(F)	2 luminaires at 90°
PTF3-ECF-S/L-2-180-(F)	2 luminaires at 180°
PTF3-ECF-S/L-3-90-(F)	3 luminaires at 90°
PTF3-ECF-S/L-4-90-(F)	4 luminaires at 90°
PTF3-ECF-S/L-3-120-(F)	3 luminaires at 120°

EcoForm PTF4
(pole top fitter fits 31/2-4" OD x 6" depth tenon)

PTF4-ECF-S/L-1-90-(F)	1 luminaire at 90°
PTF4-ECF-S/L-2-90-(F)	2 luminaires at 90°
PTF4-ECF-S/L-2-180-(F)	2 luminaires at 180°
PTF4-ECF-S/L-3-90-(F)	3 luminaires at 90°
PTF4-ECF-S/L-4-90-(F)	4 luminaires at 90°
PTF4-ECF-S/L-3-120-(F)	3 luminaires at 120°

(F) = Specify finish

1. Consult Signify to confirm whether specific accessories are BAA-compliant.

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. Published L₇₀ hours limited to 6 times actual LED test hours

Ambient Temperature °C	Driver mA	Calculated L ₇₀ Hours	L ₇₀ per TM-21	Lumen Maintenance % at 60,000 hrs
25°C	up to 600 mA	>100,000 hours	>60,000 hours	>88%

LED Wattage and Lumen Values

Unshielded

Ordering Code	Total LEDs	LED Current (mA)	Dominant Wavelength (nm)	Average System Watts	Type 2			Type 3			Type 4			Type 5			Type 5W		
					Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating	Lumen Output	Efficacy (LPW)	BUG Rating
ECF-S-32L-400-AM-G2-x	32	400	596	32	2,092	66	B1-U0-G1	2,047	65	B1-U0-G1	2,141	68	B1-U0-G1	2,259	72	B2-U0-G0	2,187	69	B2-U0-G1
ECF-S-32L-600-AM-G2-x	32	600	596	48	2,449	51	B1-U0-G1	2,396	50	B1-U0-G1	2,507	52	B1-U0-G1	2,645	55	B2-U0-G1	2,560	53	B2-U0-G1
ECF-S-48L-400-AM-G2-x	48	400	596	47	3,120	66	B1-U0-G1	3,052	64	B1-U0-G1	3,193	67	B1-U0-G1	3,369	71	B2-U0-G1	3,261	69	B2-U0-G1
ECF-S-48L-600-AM-G2-x	48	600	596	72	3,650	50	B1-U0-G1	3,571	49	B1-U0-G1	3,736	52	B1-U0-G1	3,943	54	B3-U0-G1	3,816	53	B3-U0-G1
ECF-S-64L-400-AM-G2-x	64	400	596	62	4,106	67	B1-U0-G1	4,017	65	B1-U0-G1	4,202	68	B1-U0-G1	4,434	72	B3-U0-G1	4,292	70	B3-U0-G1
ECF-S-64L-600-AM-G2-x	64	600	596	94	4,805	51	B1-U0-G1	4,701	50	B1-U0-G1	4,918	52	B1-U0-G2	5,190	55	B3-U0-G1	5,023	54	B3-U0-G1

Shielded

Ordering Code	Total LEDs	LED Current (mA)	Dominant Wavelength (nm)	Average System Watts	2-FWC		3-FWC		4-FWC		5-FWC		5W-FWC	
					Lumen Output	Efficacy (LPW)								
ECF-S-32L-400-AM-G2-x	32	400	596	32	680	22	665	21	696	22	734	23	710	22
ECF-S-32L-600-AM-G2-x	32	600	596	48	795	16	778	16	814	17	859	18	831	17
ECF-S-48L-400-AM-G2-x	48	400	596	48	1,013	21	991	21	1,037	22	1,094	23	1,059	22
ECF-S-48L-600-AM-G2-x	48	600	596	73	1,186	16	1,160	16	1,213	17	1,281	18	1,239	17
ECF-S-64L-400-AM-G2-x	64	400	596	62	1,334	22	1,305	21	1,365	22	1,441	23	1,394	23
ECF-S-64L-600-AM-G2-x	64	600	596	94	1,561	17	1,527	16	1,598	17	1,686	18	1,632	17

Values from photometric tests performed in accordance with IESNA LM-79 and are representative of the configurations shown. Actual performance may vary due to installation and environmental variables, LED and driver tolerances, and field measurement considerations. It is highly recommended to confirm performance with a photometric layout.

NOTE: Some data may be scaled based on tests of similar (but not identical) luminaires. Contact factory for configurations not shown.

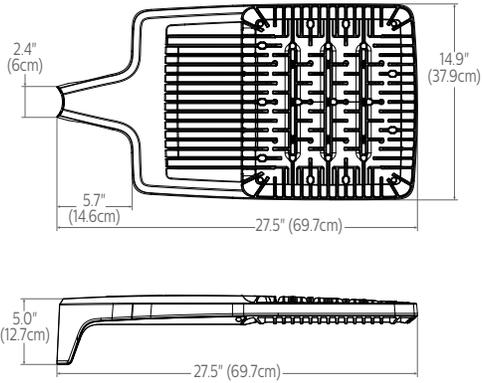
ECF-S EcoForm wildlife

Site & Area

Dimensions

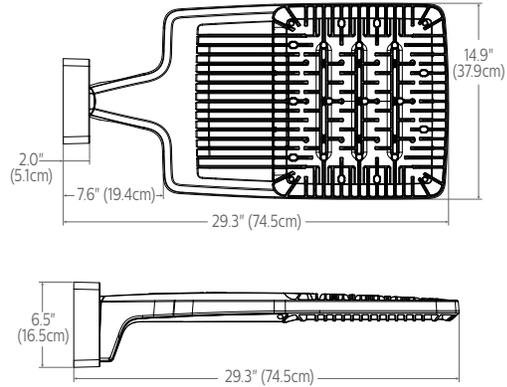
Standard Arm (AR)

Weight: 22 Lbs (9.9 Kg) EPA: 0.21ft² (.019m²)



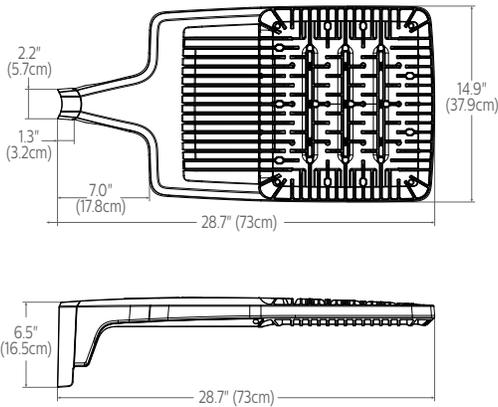
Wall (WS)

Weight: 27 Lbs. (12. 2Kg)EPA: 0.27ft² (.025m²)



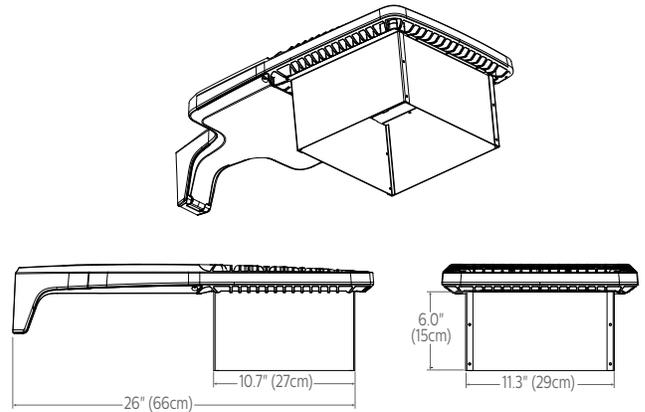
Retrofit Arm (RAM)

Weight: 24 Lbs (10.9 Kg) EPA: 0.24ft² (.022m²)

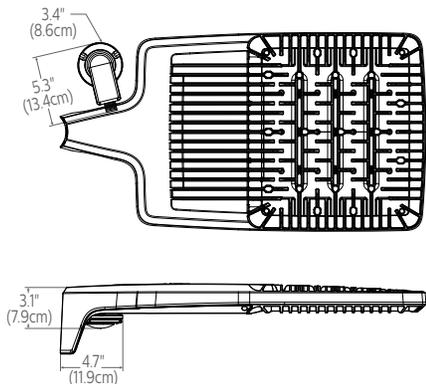


Wildlife Friendly External House side shield (FWC)

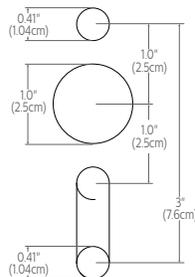
Weight: 23 Lbs (10.4 Kg) EPA: 1.0ft² (.093m²)



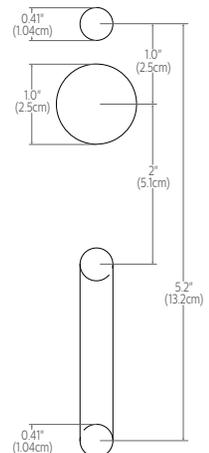
Outboard IMR-HVU sensor



Standard Arm (AR) drill pattern



Retrofit Arm (RAM) drill pattern



ECF-S EcoForm wildlife

Site & Area

Specifications

Housing

One piece die cast aluminum housing with integral arm and separate, self retained hinged, one piece die cast door frame.

IP Rating

LED light engine rated IP66. Driver compartment rated to IP65.

Vibration resistance

Luminaire is tested and rated 3G over 100,000 cycles conforming to standards set forth by ANSI C136.31-2010. Testing includes vibration in three axes, all performed on the same luminaire.

Light Engine

Light engine comprises of a module of 16-LED aluminum metal clad board fully sealed with optics offered in multiples of 2, 3 and 4 modules or 32, 48 and 64 LEDs. Module is RoHS compliant. Direct Amber LED is narrow spectrum with dominant wavelength at 596 nm (peak wavelength at 601 nm). LED light engine is rated IP66 in accordance to Section 9 of IEC 60598-1.

LED Thermal management

The housing design allows the one piece housing to provide excellent thermal management critical to long LED system life.

Optical systems

Type 2, 3, 4, 5 and 5W.

Mounting

Standard luminaire arm mounts to 4" round poles. Can also be used with 5" O.D. poles. Square pole adapter included with every luminaire. Round Pole Adapter (RPA) required for 3-3.9" poles.

Control options

0-10V dimming (DD): Access to 0-10V dimming leads supplied through back of luminaire (for secondary dimming controls by others). Cannot be used with other control options.

Field Adjustable Wattage Selector (FAWS): Luminaire equipped with the ability to manually adjust the wattage in the field to reduce total luminaire lumen output and light levels. Comes pre-set to the highest position at the lumen output selected. Use chart below to estimate reduction in lumen output desired. Cannot be used with other control options or motion response.

FAWS Position	Percent of Typical Lumen Output
1	25%
2	50%
3	55%
4	65%
5	75%
6	80%
7	85%
8	90%
9	95%
10	100%

Note: Typical value accuracy +/- 5%

Automatic Profile Dimming (CS/CM/CE/CA): Standard dimming profiles provide flexibility towards energy savings goals while optimizing light levels during specific dark hours. Dimming profiles include two dimming settings including dim to 30% or 50% of the total lumen output. When used in combination with not programmed motion response it overrides the controller's schedule when motion is detected. After 5 minutes with no motion, it will return to the automatic dimming profile schedule. Automatic dimming profile scheduled with the following settings:

- **CS50/CS30:** Security for 7 hours night duration (Ex., 11 PM - 6 AM)
- **CM50/CM30:** Median for 8 hours night duration (Ex., 10 PM - 6 AM)

All above profiles are calculated from mid point of the night. Dimming is set for 6 hours after the mid point and 1 or 2 hours before depending of the duration of dimming. Cannot be used with other dimming control options.

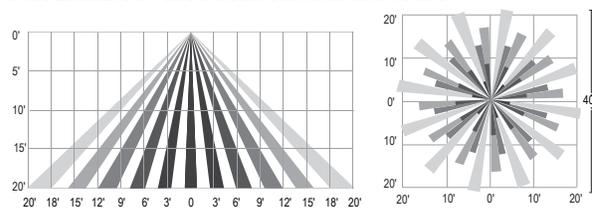
Motion response options

Bi-Level Infrared Motion Response (BL-IMRI): Motion Response module is mounted integral to luminaire factory pre-programmed to 50% dimming when not ordered with other control options. BL-IMRI is set/operates in the following fashion: The motion sensor is set to a constant 50%. When motion is detected by the PIR sensor, the luminaire returns to full power/light output. Dimming on low is factory set to 50% with 5 minutes default in "full power" prior to dimming back to low. When no motion is detected for 5 minutes, the motion response system reduces the wattage by 50%, to 50% of the normal constant wattage reducing the light level. Other dimming settings can be provided if different dimming levels are required. This can also be done with FSIR-100 Wireless Remote Programming Tool (contact Technical Support for details).

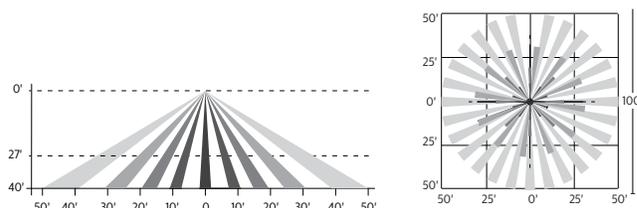
Infrared Motion Response with Other Controls: When used in combination with other controls (Automatic Dimming Profile), motion response device will simply override controller's schedule with the added benefits of a combined dimming profile and sensor detection. In this configuration, the motion response device cannot be re-programmed with FSIR-100 Wireless Remote Programming Tool. The profile can only be re-programmed via the controller.

Infrared Motion Response Lenses (IMRI3/IMRI7): Infrared Motion Response Integral module is available with two different sensor lens types to accommodate various mounting heights and occupancy detection ranges. Lens #3 (IMRI3) is designed for mounting heights up to 20' with a 40' diameter coverage area. Lens #7 is designed for higher mounting heights up to 40' with larger coverage areas up to 100' diameter coverage area. See charts for approximate detection patterns:

IMRI3 Luminaire or remote mount controller with #3 lens



IMRI7 Luminaire or remote mount controller with #7 lens



ECF-S EcoForm wildlife

Site & Area

Specifications (continued)

Electrical

Twist-Lock Receptacle (TLRD5/TLRD7/ TLRPC): Twist Lock Receptacle with 5 pins enabling dimming or with 7 pins with additional functionality (by others) can be used with a twist-lock photoelectric cell or a shorting cap. Dimming Receptacle Type B (5-pin) and Type D-24 (7-pin) in accordance to ANSI C136.41. Can be used with third-party control system. Receptacle located on top of luminaire housing. When specifying receptacle with twistlock photoelectric cell, voltage must be specified. When ordering Twist-lock receptacle (TLRD5 or TLRD7), photocell or shorting cap is not included. TLRPC is shipped standard with 5 pin.

Driver: Driver efficiency (>90% standard). 120-480V available (restrictions apply). Open/short circuit protection. Optional 0-10V dimming to 10% power. RoHS compliant.

Button Photocontrol (PCB): Button style design for internal luminaires mounting applications. The photocontrol is constructed of a high impact UV stabilized polycarbonate housing. Rated voltage of 120V or 208-277V with a load rating of 1000 VA. The photocell will turn on with 1-4Fc of ambient light.

Surge protection (SP1/SP2): 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 NeutralGround, and in accordance with DOE MSSLC Model Specification for LED Roadway Luminaires Appendix D Electrical Immunity High test level 10kV/10kA. 20kV / 10kA surge protection device that provides extra protection beyond the SP1 10kV/10kA level.

Retrofit Arm Mount

EcoForm features an innovative retrofit arm kit. When specified with the retrofit arm (**RAM**) option, EcoForm seamlessly simplifies site conversions to LED by eliminating the need for additional pole drilling on most existing poles. RAM will be boxed separately.

Listings

UL/cUL listed to the UL 1598 standard, suitable for Wet Locations. Suitable for use in ambients from -40° to 40°C (-40° to 104°F). The quality systems of this facility have been registered by UL to the ISO 9001 series standards. Florida Wildlife Certified.

Finish

Each standard color luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (**TGIC**) textured polyester powdercoat finish. Standard colors include bronze (**BZ**), black (**BK**), white (**WH**), dark gray (**DGY**), and medium gray (**MGY**). Consult factory for specs on optional or custom colors.

Warranty

EcoForm luminaires feature a 5 year limited warranty. See signify.com/warranties for complete details and exclusions.

Buy American Act of 1933 (BAA):

This product is manufactured in one of our US factories and, as of the date of this document, this product was considered a commercially available off-the-shelf (COTS) item meeting the requirements of the BAA. This BAA 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. Prior to ordering, please visit www.signify.com/baa to view a current list of BAA-compliant products to confirm this product's current compliance.

