Project Name:

Project Location:

Centro Historico, Ciudad de MÃ©xico, D.F., MÃ©xico (19.43N, 99.13W)

Provided By:

EG-SERIES
SOLAR POWERED LED LIGHTING SYSTEM

Manufacturer: Carmanah Technologies
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Toll Free: 1.877.722.8877 (US & Canada)
Worldwide: 1.250.380.0052 | Fax: 1.250.380.0062
Web: carmanah.com

GENERAL DESCRIPTION

Designed for outdoor lighting applications, including collector road and highway road lighting, the EG500 solar LED outdoor lighting system is a powerful alternative to traditional AC lighting. Featuring a top-of-pole integrated design which allows for an easy and rapid installation and superior theft and vandalism protection, the EG500 is engineered to withstand extreme weather conditions with wind load ratings of up to 177 kph (110 mph). Superior energy efficiency guarantees maximum light output and uniformity from the industry's highest performing light fixtures.

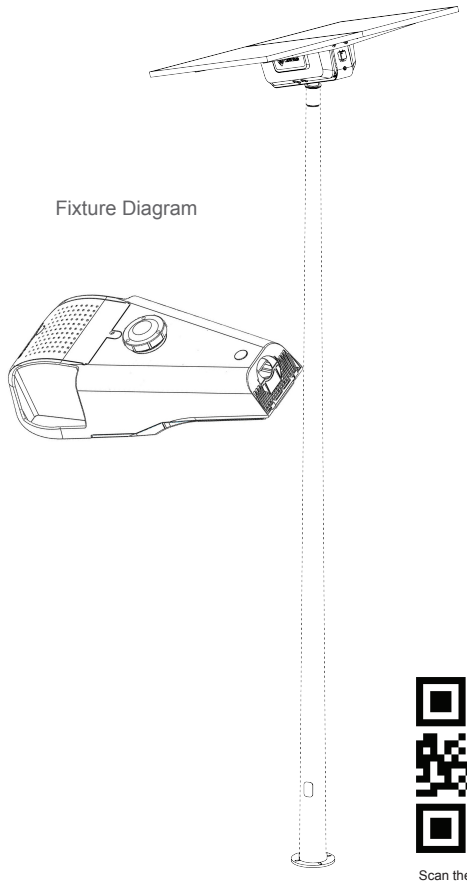
PRODUCT ORDER NUMBER

EG500-3.4-WH-20-RND-N-7146-5-SF-RMS-T2-HT-04-SV-C-50K-N-04-13

SOLAR LIGHTING SYSTEM DESCRIPTION

SOLAR ENGINE DETAILS	
Model	EG500
Tilt Angle	20 degrees from horizontal
Solar Panel Wattage	> 500W
Battery Option	G31
Battery Quantity	4
OPERATING DETAILS	
Latitude	19.43N
Longitude	99.13W
Array to Load Ratio	1.4
Autonomy	4.0 days
Insolation (Average Annual)	5.2 kWh/m^2/day
Operating Profile	Dusk-Dawn
FIXTURE DETAILS	
Lumens	7146 Lumens
Fixture Type	Roadmaster 40
LEDs per Fixture	40 LEDs
Fixtures per System	Single Fixture
Fixture Wattage	83.7 W
Fixture Voltage	33.0 V
Light Distribution	Type II (R2)
Light Color Temperature	5000K Cool White (CW)

Solar Lighting System Diagram



Fixture Diagram

Scan the QR code above for more information about the Carmanah EG-Series.

All product performance data is dependent upon installation location.

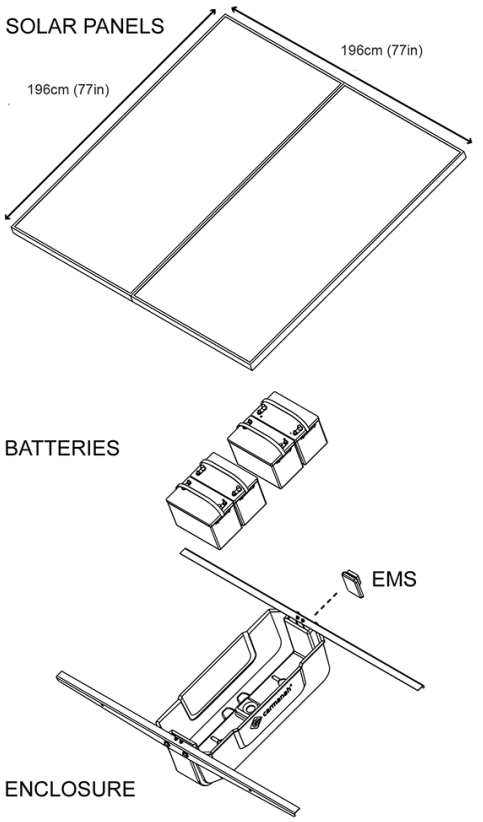
EG-SERIES
SOLAR POWERED LED LIGHTING SYSTEM

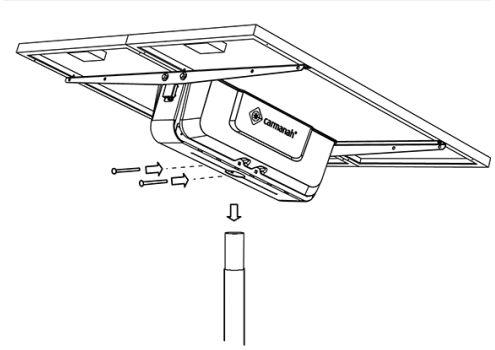
SOLAR ENGINE

SPECIFICATIONS	
EPA*	1.880 m² (20.24 ft²)
APA**	1.446 m² (15.57 ft²)
Weight (without Batteries)	87.6 kg (193 lb)
Weight (with Batteries)	212.9 kg (469 lb)
Solar Panel Length	196.0 cm (77.0 in)
Solar Panel Width	196.0 cm (77.0 in)
Solar Panel Wattage	> 500W
Tilt Angle	20 degrees from horizontal
Vandalism Protection	Top-of-pole mounted
Enclosure	UV-treated industrial acrylonitrile butadiene styrene
Electronics	Sealed to IP68
Solar Panels	High efficiency, performance matched to Carmanah's energy management system for solar lighting applications.
Chassis and Fasteners	Hot-dip galvanized steel and stainless steel
Operating Temperature	-25°C to +55°C (-13°F to 131°F)
Storage Temperature	-25°C to +60°C (-13°F to 140°F)
Manufacturing	Manufactured in the USA in a facility registered to ISO 9001:2000 quality management system standards
MOUNTING	
Solar Engine	Top of pole, round tenon, 15.2 cm (6.0 in) in length, 8.9 cm (3.5 in) outer diameter
Panel Direction	For Northern hemisphere panel faces south. For Southern hemisphere panel faces north.
Installation Time	60 minutes or less
BATTERIES	
Type	G31
Quantity	4
Capacity	444Ah (12V, at approximately 48 hr)
Depth of Discharge (Average)	25%
Cycles	2200
Rating***	5+ years

* Effective Projected Area (EPA) calculated as the Actual Projected Area (APA) multiplied by a drag coefficient of 1.3. EPA of engine only: does not include fixture EPA.
** 3 second gust as per AASHTO 2001
***Rating based on an annual average temperature of 20°C (68°F)

Solar Engine Exploded View





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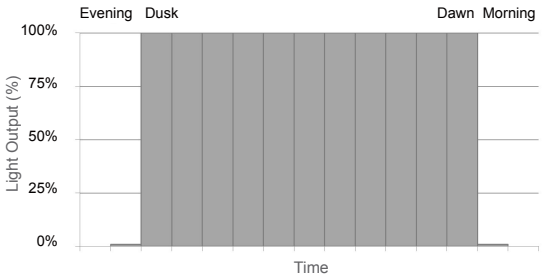
OPERATION

SPECIFICATIONS	
Latitude, Longitude	19.43N 99.13W
Insolation (Minimum Monthly Average)	5.2 kWh/m^2/day
Temperature (Average)	18.9 C (66.02 F)
Longest Night	13.0 hr
Array to Load Ratio	1.4
Autonomy	4.0 days
Operating Profile	Dusk-Dawn
Day/Night Transitioning	Via solar panels
Status Indicators	Battery connection, low/high voltage disconnect, dimming

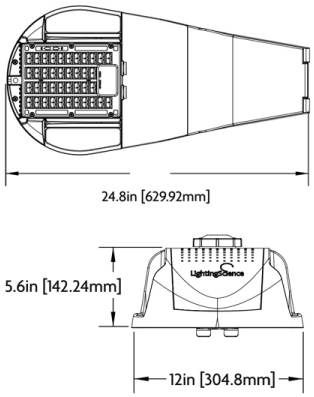
Operating Profile



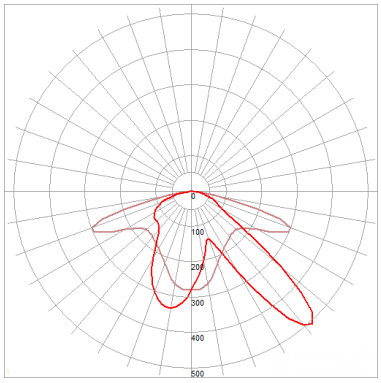
FIXTURE

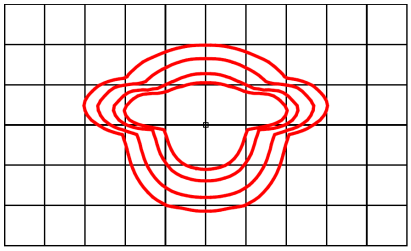
SPECIFICATIONS	
Lumens	7146 Lumens
Fixture Type	Roadmaster 40
Fixture Manufacturer	Lighting Science Group Corp.
Number of LEDs per Fixture	40 LEDs
Fixtures per System	Single Fixture
Fixture Efficacy (Minimum)	85.3 lm/W
Fixture Wattage	83.7 W
Light Color Temperature	5000K Cool White (CW)
Rendering Index (CRI)	70
Rated Life L70	>100,000 hrs @ 25°C (77°F)
Operating Temperature	-40°C to +50°C (-40°F to 122°F)
Housing	Die cast aluminum
Finish	Powder coated: Grey (RAL 7038)
Dimensions	63.5 cm x 30.48 cm x 15.24 cm (25 in x 12 in x 6 in)
EPA	0.093 m² (1.0 ft²)
Weight	6.8kg (15 lb)
Mounting	Fits standard 3.8 cm (1.25 in) to 6.1 cm (2.0 in) diameter mast arm
Manufacturing	Manufactured in the USA in a facility registered to ISO 9001:2000 quality management system standards
Mounting Height and Arm Length	For fixture mounting height and arm length, please refer to your project's lighting layout. Fixture arms are not provided by Carmanah.

Fixture Diagrams



Light Distribution Plots





Roadmaster-TypeII

LIGHT DISTRIBUTION

SPECIFICATIONS	
Light Distribution	Type II (R2)
Photometry	Certified photometry per IESNA LM-79-2008, LM-80-2008
Other	International Dark-Sky Association (IDA) approved

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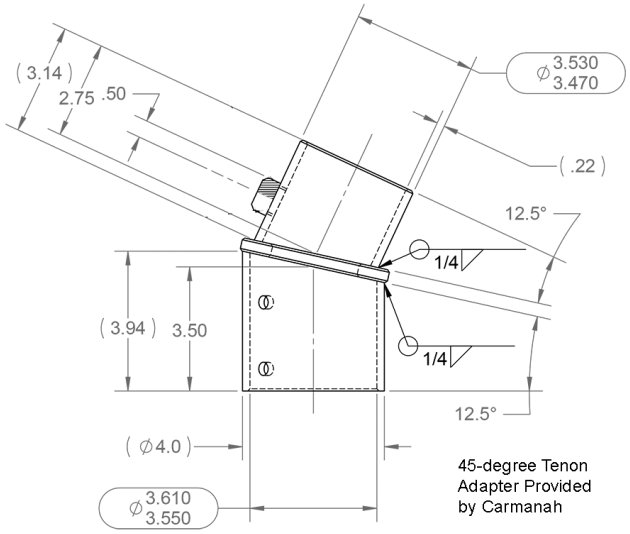
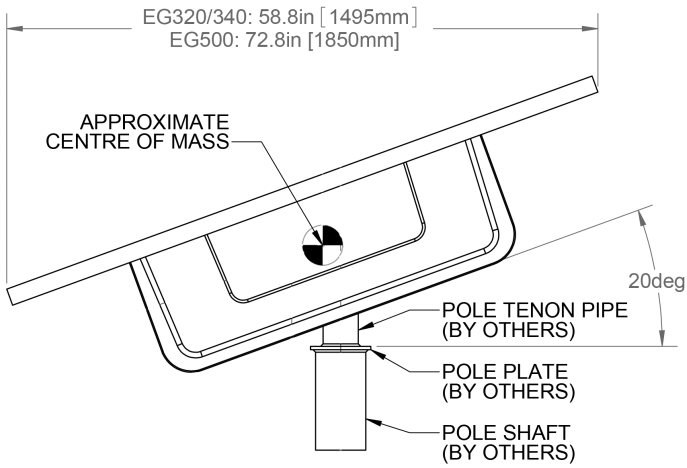
POLE SPECIFICATIONS

NOTE: CARMANAH DOES NOT PROVIDE POLES	
Engine Type	EG500
Engine Weight with Batteries	212.9 kg (469 lb)
Engine EPA	1.880 m² (20.24 ft²)
Engine APA	1.446 m² (15.57 ft²)
Engine Mounting Details	Top of pole, round tenon, 15.2 cm (6.0 in) in length, 8.9 cm (3.5 in) outer diameter

Tenon Interface Diagram

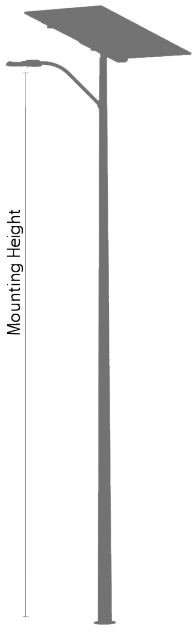


Engine Interface Diagram



MAST ARM SPECIFICATIONS

NOTE: CARMANAH DOES NOT PROVIDE MAST ARMS	
Fixture Type	Roadmaster 40
Fixtures per System	Single Fixture
Fixture Weight	6.8kg (15 lb)
Fixture EPA	0.093 m² (1.0 ft²)
Fixture Mounting Details	Fits standard 3.8 cm (1.25 in) to 6.1 cm (2.0 in) diameter mast arm
Fixture Mounting Height and Arm Length	For fixture mounting height and arm length, please refer to your project's lighting layout. Fixture arms are not provided by Carmanah.



SYSTEM SIZING

The Carmanah selector tool ensures that the correct EG-series system is chosen for the application specified by the user. Employing over 25 years of NASA data, including temperature, solar insolation and average cloud cover values for the location in which the solar engine will be deployed, the Carmanah selector tool provides a guarantee of EG-series performance over the product's lifespan.

SOLAR PANELS

Selected for high module conversion efficiency, positive tolerance, extended wind and snow load testing, weak light performance, self-cleaning and anti-reflective capabilities, the monocrystalline solar panels utilized by EG-series systems are provided by world-leading manufacturers of crystalline silicon modules that adhere to the highest international standards.

SOLAR ENGINE

The EG-series solar engine is engineered to withstand extreme environmental conditions, including heat, wind, corrosion, rain, hail, dust and sand. A pivoting solar panel aids maintenance and installation, while a sturdy metal chassis and secure enclosure protects systems within hurricane and coastal zones. Galvanized finishing, IP68-rated sealed electronics, and industrial plastics are also employed to further aid svstem durabilitv.

BATTERIES

Absorbed glass mat (AGM) batteries are tested to withstand years of deep cycle use within high and low temperatures and are field-proven to perform with Carmanah EG-series systems. Recognized under UL 1989, EG500 batteries (Group 31) are designed specifically for solar power applications and are completely recyclable. Upgradeable battery boost options exist under Accessories. When in storage, batteries must be recharged every two months. See the Accessories section for Extended Storage Battery Charger products.

ENERGY MANAGEMENT SYSTEM

The Energy Management System (EMS) is the conduit to the efficient collection, storage and usage of energy collected by the solar panels. The Carmanah EMS is over 95% efficient, providing an optimum transfer of energy and is responsible for the opportunity to employ operating profiles.

CERTIFICATIONS

SOLAR ENGINE

CE 2004-108-CE, EN 55015, EN 61547 for emissions and immunity, IP68 EMS.

PANELS

UL 1703, IEC 61215, IEC 61730, conformity to CE.

FIXTURE

3G Vibration Rating, IP66 LED Optical Module. Dark Sky Friendly. IDA Approved. RoHS compliant.

OPERATING PROFILES

The Energy Management System (EMS) controls LED drivers which control LED fixtures based on the operating profile. Controlled by customer's specifications, the operating profile is configured at the factory and is designed to maximize lumen output when it is required (such as during the busiest times of the night), and reduce lumen output as activity lessens in an effort to conserve energy. The EG-series offers seven operating profiles which range from all-night (such as dusk to dawn) to profiles adapted for usage during peak hours (including 5-dim-2, which means that the light is on for five hours at 100%, dimmed for a period of time, then returning to 100% for two hours). An optional Infrared (IR) Controller can program the EMS from the ground.

FIXTURE

The fixtures selected by the Carmanah selector tool are specifically configured for the EG-series solar LED lighting systems' operation to guarantee light output, performance and system reliability as specified by the customer. Fixture housing is die cast aluminum and LED optical modules are tested to IESNA LM-79-2008 and LM-80-2008 standards. Fixtures are IDA friendly, WET and RoHS compliant, and tested to 3G Vibration Rating with electronics sealed to IP66 (LED optical module).

WARRANTY

The EG500 solar LED lighting systems is covered under a full system-wide three-year limited warranty, with batteries pro-rated.

ACCESSORIES

DESCRIPTION	PART NO.	FEATURES
Install Kit	65938	Includes lifting strap and u-bolts for ease of installation. Recommended two per project.
Infrared (IR) Controller	65924	To control the EG-Series system remotely. Recommended two per project.
Hardware Spares Kit	65971	Spare hardware for the assembly of the engine. Recommended one per ten systems.
Extended Storage Battery Charger	GPSC-10-12	Charging system for batteries in long-term storage (2 months)

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