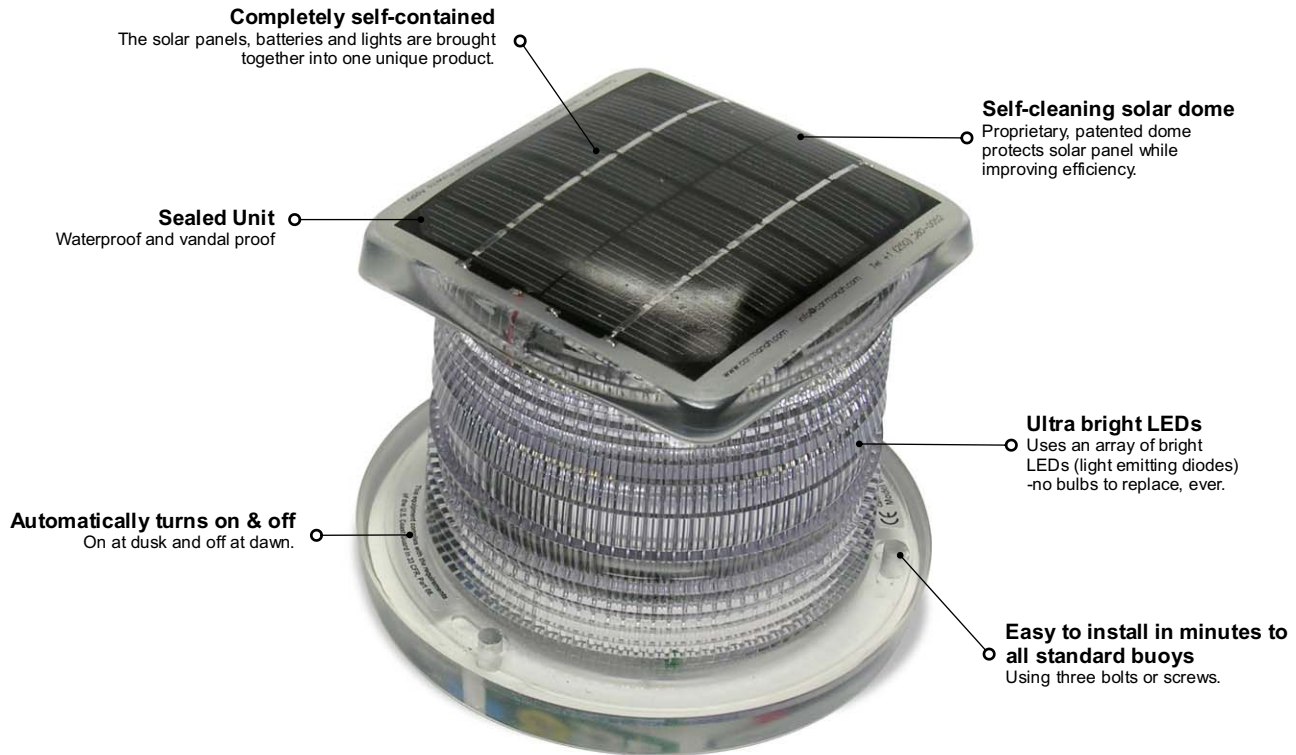


# The Original Solar-Powered LED Marine Lights Two Nautical Miles<sup>1</sup>



## Designed Coast Guard Tough

The Carmanah 2NM (3.70km) solar-powered LED lights are the world's most advanced, solar-powered LED navigational and hazard-marking lights. They are completely self-contained, install in minutes and require no maintenance or servicing for up to five years.

## Reliable Technology

Through the innovative combination of solar power and LED technology, the Model 601 light charges during the day, even under cloudy conditions, and turns on automatically at night. Instead of relying on short-lived incandescent bulbs, the Model 601 uses durable, ultra bright light emitting diodes (LEDs), which have an operating lifespan of up to 100,000 hours.

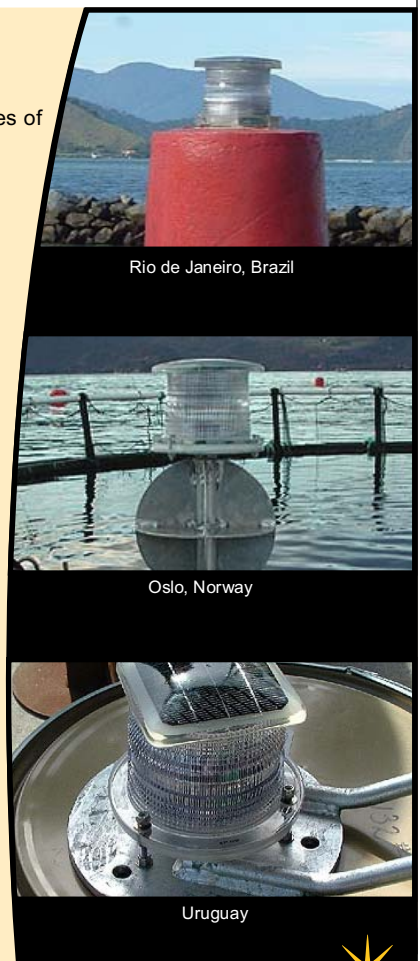
## Quality Manufacturing

Designed and built in partnership with international coast guard agencies, the Model 601 uses an array of ultra-bright LEDs and can produce over 200 standard flash patterns. Custom patterns can be special ordered. The Model 601's light output meets IALA's five international chromaticity color requirements, and is available in green, red, amber, white and blue. The Model 601 is also manufactured in accordance with ISO 9000:2001 Quality Assurance Standards.

The 601 has been used around the world for all types of industrial/commercial applications, including:

- Small safety/hazard buoys
- Short range navigation buoys
- Research buoys
- Private aids to navigation
- Port and marina entrances
- Channel and canal markers
- Offshore oil & gas rigs
- Public piers, docks and marine walkways
- Boat and barge terminals
- Breakwaters and all types of marine infrastructure

**30 day satisfaction guarantee  
and three year warranty!**



Rio de Janeiro, Brazil

Oslo, Norway

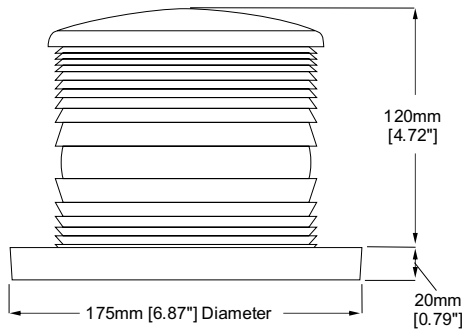
Uruguay



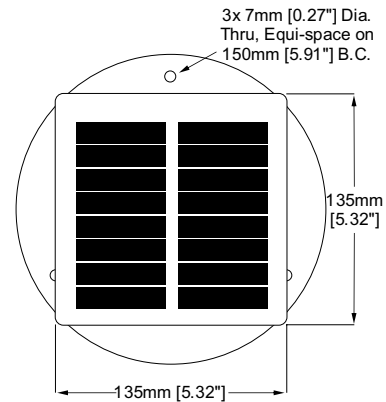
# The Original Solar-Powered LED Marine Lights Two Nautical Miles<sup>1</sup>



Side View



Top View



## SPECIFICATIONS

### LIGHT OUTPUT

Effective Intensity (Transmissivity constant of 0.74)

Green	~ 10.7 Candela
Red	~ 5.4 Candela
Amber	~ 4.12 Candela
White	~ 6.6 Candela

Nominal Night Range<sup>1</sup> (Employs Method of Schmidt-Clausen)

Green	~ 2.5 NM
Red	~ 1.9 NM
Amber	~ 1.87 NM
White	~ 2.27 NM

Vertical Divergence	7°
Horizontal Output	360°

### OPERATION

Minimum Autonomy <sup>3</sup>	300 Hours
Minimum Equivalent Peak Sun Hours to Maintain Minimum Autonomy	1.5 Hours
Illumination Technology	Ultra-bright 16 Light Emitting Diodes
Lifespan of LEDs	Up to 100,000 Hours
Chromacity of Color Output	Meets IALA specifications
Available Standard Flash Patterns (Custom patterns available)	256 including "steady-on" (user-adjustable)

### CONSTRUCTION

Solar Panels	Mono-Crystalline Potted with UV-protected polyurethane and domed for higher efficiency
Battery	Recycled, sealed lead-acid
Lens Material	Polycarbonate
Battery Venting	Vent at the bottom of the lantern
Sealing	Self-contained unit, potted with polyurethane
Weight	2.2 kg (4.85 lbs)

### ENVIRONMENTAL and ELECTRICAL

Temperature Range <sup>5</sup>	-40° to +80° C (-40° to 176° F)
Waterproof	As per IP67 (NEMA 6)
CE Approval	As per EN 60945:1997

### TRADEMARKS and PATENTS

Trademarks and Patents	US Patents: 5,782,552 & 6,013,985 European Patent Application: 96925627.0 Other Patents Pending
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### Optional Infrared Programmer



<sup>1</sup> Actual range is dependant on flash pattern, intensity, and LED color.

<sup>2</sup> All "Flashing" light specifications are based on 100% intensity setting at 12.5% duty cycle (code 129).

<sup>3</sup> Actual figures for autonomy depend on the intensity level setting.

<sup>4</sup> Lights will function reliably at higher latitudes than 55° North or South if intensity/autonomy is properly adjusted to suit operating environment by an Authorised Carmanah Representative.

<sup>5</sup> Amber, Red, Green: ~14 years to 80% of original effective intensity when operated at night with a 12.5% duty cycle.

<sup>6</sup> Consistent ambient temperatures above +25°C (+77°F) may affect overall battery life. Temperatures above +60°C (+140°F) may affect output.

All specifications are subject to change without notice.

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