

Model 701

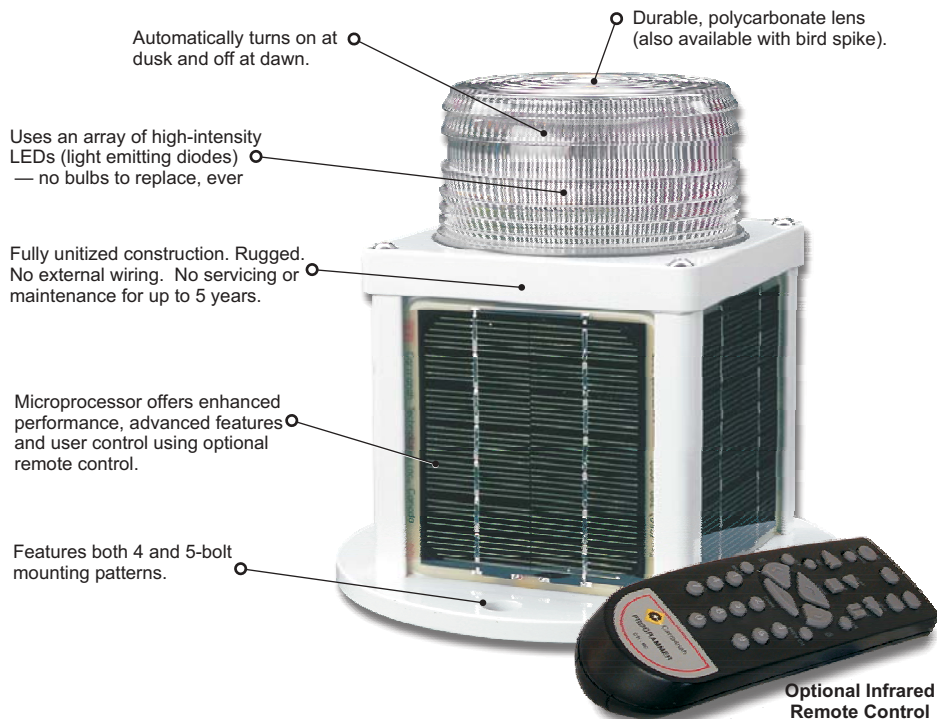
Three Nautical Mile¹ Marine Light

Typical Applications

- Aids to navigation
- Private aids to navigation
- Port and marina entrances
- Channel and canal markers
- Offshore oil & gas infrastructure
- Research buoys

Features & Benefits

- Replaces traditional 155mm 0.25 amp or 0.5 amp navigation lights
- Distance of visibility up to 3 nautical miles (5.4 kilometers)
- Available in red, green, amber, white and blue
- Any flash pattern available from the factory. Can also be programmed by the user using optional infrared remote control
- Completely self-contained and sealed against environmental conditions
- Extremely rugged, waterproof and vandal resistant
- Installation takes minutes and requires minimal technical expertise
- Features both four and five-bolt mounting patterns
- Provides up to five years of operation with no maintenance or servicing
- Replaceable battery packs available
- Will charge under nearly all weather conditions
- Up to 300 hours of operating capacity from a full charge
- Manufactured to ISO9001 Quality Assurance Standards
- 30 day satisfaction guarantee and three year warranty



The Carmanah Model 701 is the world's most advanced, fully-integrated, solar LED three nautical mile¹ (5.4km) navigation and hazard-marking light. It installs in minutes and requires no maintenance or servicing for up to five years.

Typical Applications

Originally designed and built under contract with the U.S. Coast Guard, the 700 Series are the first solar-powered lanterns using light emitting diodes (LEDs) to enter the U.S. Navigational Aid System.

The 701 is the smaller and lighter version of the two models available in the 700 Series; it is intended for use in regions where daily solar illumination is greater than 1.5 hours of winter sunlight.

Fully-integrated, self-contained and watertight, the 700 Series are used around the world for marking navigation buoys, port and harbor entrances, breakwaters — any marine application requiring a marker light of 3 nautical miles of visibility¹.

The Technology

Utilizing an innovative combination of solar and LED technology, the 700 Series lights charge during the day, even under cloudy conditions, and turn on automatically at night. Instead of traditional incandescent bulbs, the 700 Series use durable, high-intensity light emitting diodes (LEDs), which have a lifespan of up to 100,000 hours. Therefore, other than replacing the battery packs approximately every 5 years, the 700 Series are designed to operate flawlessly with no additional servicing or maintenance.

30-Day Risk-Free Evaluation

Order a Model 701 today and evaluate the product's quality, performance and reliability for yourself. If you are not fully satisfied, you can return the unit within 30 days for a refund of the purchase price.

No external wiring, no battery or bulb replacement, no maintenance, no worries...

SOLAR MARINE LIGHT



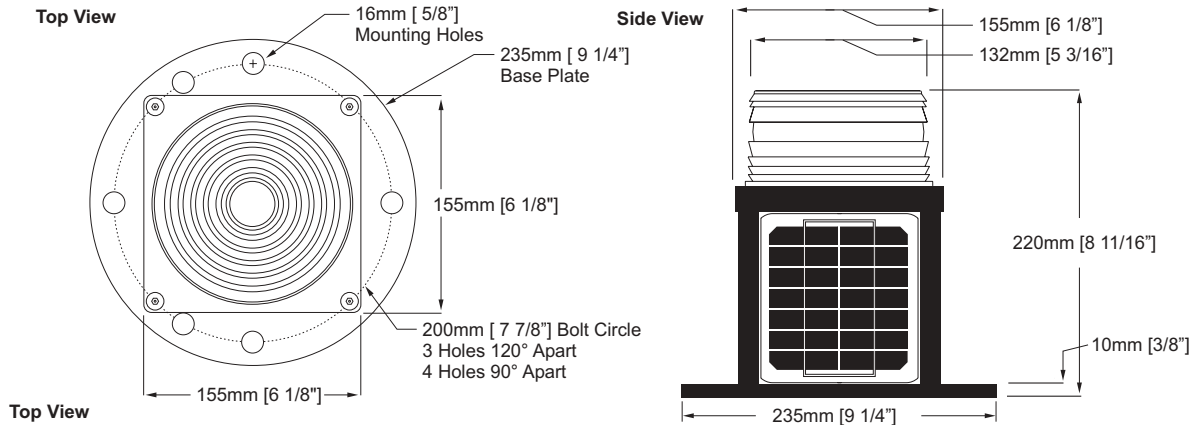
Carmanah

THE LEADER IN SOLAR LED LIGHTING SOLUTIONS



Model 701

Three Nautical Mile¹ Marine Light

**Optional Infrared Remote Control**

SPECIFICATIONS

LIGHT OUTPUT

Effective Intensity (Transmissivity constant of 0.74)

Green	~ 29 Candela	~ 10 Candela
Red, Amber, White, Blue	~ 18 Candela	~ 6 Candela

Nominal Night Range (Employs Method of Schmidt-Clausen)

Green	~ 3.7 NM	~ 2.6 NM
Red, Amber, White, Blue	~ 3.2 NM	~ 2.2 NM

Vertical Divergence	7° at 50% intensity
Horizontal Output	360°

OPERATION

Minimum Autonomy ³	150 Hours	75 Hours
Minimum Equivalent Peak Sun Hours to Maintain Minimum Autonomy	3 Hours	6 Hours
Latitude Range ⁴	55° S to 55° N	
On / Off Level	70 / 100 Lux	
Illumination Technology	16 or 24 LEDs, depending on color	
Lifespan of LEDs	Up to 100,000 Hours	
Chromacity of Color Output	Meets IALA specifications	
Available Standard Flash Patterns (Custom patterns available)	208 including "steady-on"	

SOLAR PANELS

Type	Mono-Crystalline Potted with UV-protected polyurethane
Maximum Power	5.6 Watts
Efficiency	14%

BATTERY

Type	Pure-lead thin plate with starved-electrolyte
Nominal Voltage	4 Volts
Capacity	15 Amp-hr at 10-hr discharge rate

CONSTRUCTION

Lens Material	Polycarbonate
Battery Venting	Vent at the bottom of the lantern
Sealing	Self-contained unit, sealed with gaskets
Weight	5.21 kg (11.5 lbs)

ENVIRONMENTAL and ELECTRICAL

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

QUALITY CONTROL and PATENTS

Quality Assurance	ISO 9001
Trademarks and Patents	US Patents: 5,782,552 & 6,013,985 European Patent Application: 96925627.0 Other Patents Pending

¹ Actual range is dependant on flash pattern, intensity, and LED color.² All "Flashing" light specifications are based on 100% intensity setting at 12.5% duty cycle (code 064 - 15 flashes per minute).³ Actual figures for autonomy depend on the intensity level setting.⁴ 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.⁵ 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.

REPRESENTED BY

Carmanah Technologies Inc.
Building 4, 203 Harbour Road
Victoria, British Columbia
Canada V9A 3S2

Toll-Free: 1-877-722-8877
General: (250) 380-0052
Fax: (250) 380-0062
E-mail: info@carmanah.com
Web Site: www.carmanah.com

Carmanah is a Canadian public corporation - TSX VE: CMH

© 2002 Carmanah Technologies Inc.
"Carmanah" and Carmanah logo are trademarks of Carmanah Technologies Inc.
Document: Mrn-701-r06-091002

**Carmanah**

THE LEADER IN SOLAR LED LIGHTING SOLUTIONS

