

Model 501

One Nautical Mile¹ Marine Light

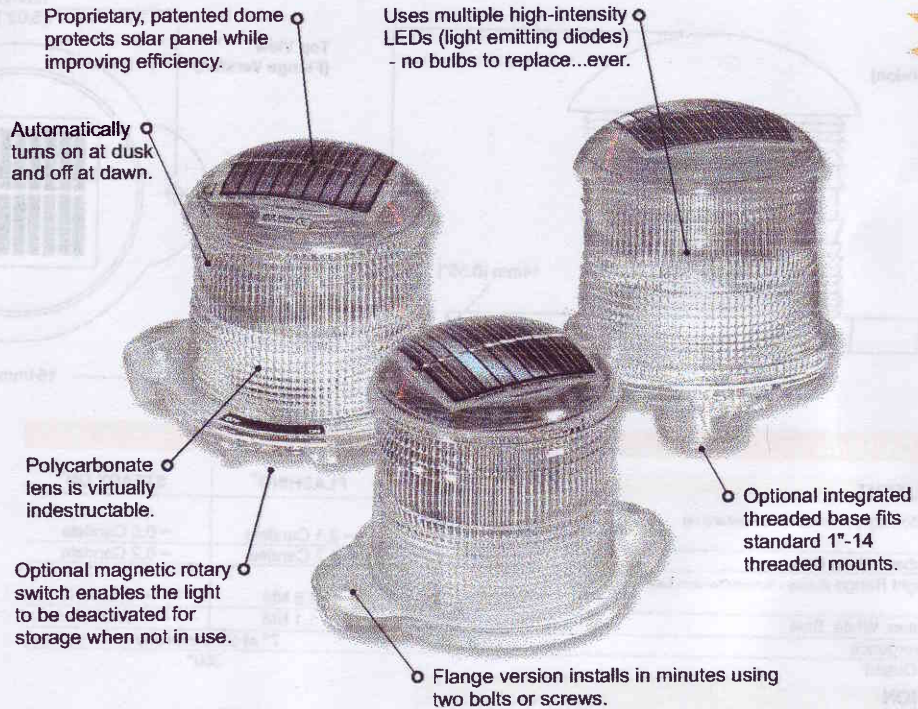
SOLAR MARINE LIGHT

Typical Applications

- Small safety/hazard buoys
- Short range navigational buoys
- Research buoys
- Private docks, boat houses, swim rafts and other types of marine infrastructure
- Marine floating signs
- Waterfront safety lighting
- Perimeter marking for all types of marine netting, cages and barriers
- There are also numerous non-marine hazard-marking applications

Features & Benefits

- Distance of visibility up to 1 nautical mile (1.8 kilometers)
- Available in red, green, amber, white and blue
- Can be ordered in "steady on" or one of six standard IALA flash patterns
- Completely self-contained and watertight. Designed to operate reliably in harshest of environmental conditions
- Polycarbonate/polymer construction is vandal resistant and virtually indestructible
- Installation takes minutes and requires minimal technical expertise
- Provides up to five years of operation with no maintenance or servicing
- Will charge under nearly all weather conditions
- Up to 150 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 501 is the world's most advanced, fully-integrated, solar LED one nautical mile¹ (1.8km) marine hazard-marking light. It installs in minutes and requires no maintenance or servicing for up to five years.

Typical Applications

The Model 501 is a multipurpose solar-powered marine light suitable for virtually any navigation or hazard-marking requirement up to a 1 nautical mile range¹.

Available in green, red, amber, white and blue with one of 7 standard IALA flash patterns, this model has been used for lighting applications as diverse as marking mooring buoys, research buoys, dredging lines, private and commercial docks, breakwaters, swim rafts and aquaculture farm perimeters, etc.

The Technology

Utilizing an innovative combination of solar power and LED (light emitting diode) technology, the 501 charges during the day, even under cloudy conditions, and turns on automatically at night.

The 501 features such options as a flange base (installs with two bolts or screws) or a threaded base (1"-14 thread fits standard VHF antennae mount), as well a proprietary magnetic switch for activating the unit.

The 501 is available in five colors: green, red, amber, white and blue. The unit can be ordered in either "steady on" mode or one of six standard flash patterns. The 501 is rugged, reliable and virtually indestructible; it is designed to operate for up to 5 years with no maintenance or servicing.

30-Day Risk-Free Evaluation

Order a Model 501 today and evaluate the product's quality, performance and reliability for yourself. If you are not fully satisfied, you can return it within 30 days for a refund of the purchase price.

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



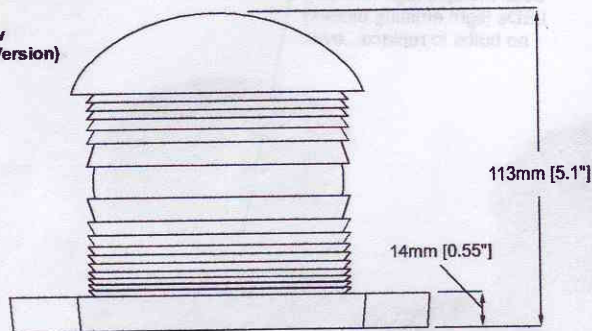
THE LEADER IN SOLAR LED LIGHTING SOLUTIONS



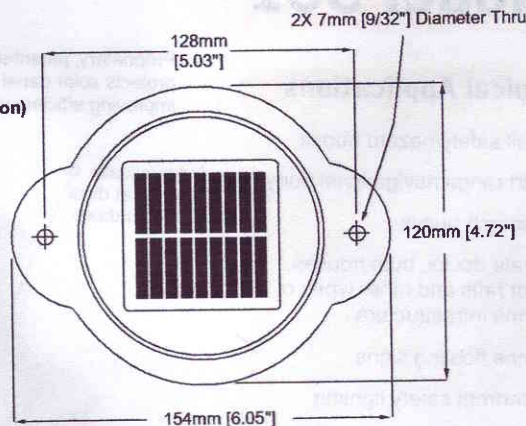
Model 501

One Nautical Mile¹ Marine Light

Side View
(Flange Version)



Top View
(Flange Version)



SPECIFICATIONS

LIGHT OUTPUT

	FLASHING ²	STEADY ON
Effective Intensity (Transmissivity constant of 0.74)		
Green	~ 3.1 Candela	~ 0.5 Candela
Red, Amber, White, Blue	~ 1.2 Candela	~ 0.2 Candela
Nominal Night Range (Employs Schmitt-Clausen's Law)		
Green	~ 1.6 NM	~ 0.8 NM
Red, Amber, White, Blue	~ 1.1 NM	~ 0.5 NM
Vertical Divergence	7° at 50% intensity	
Horizontal Output	360°	

OPERATION

Minimum Autonomy	300 Hours
Minimum Equivalent Peak Sun Hours to Maintain Minimum Autonomy	1.5 Hours
Latitude Range	55° S to 55° N
On / Off Level	350 / 250 Lux
Illumination Technology	4 LEDs
Lifespan of LEDs	Up to 100,000 Hours
Chromaticity of Color Output	Meets IALA specifications
Available Standard Flash Patterns	7 including steady-on

SOLAR PANELS

Type	Mono-Crystalline Potted with UV-protected polyurethane and domed for higher efficiency
Maximum Power	0.3 Watts
Efficiency	14%

BATTERY

Type	Pure-lead thin plate with starved-electrolyte
Nominal Voltage	2 Volts
Capacity	2.5 Amp-hr at 10-hr discharge rate

CONSTRUCTION

Lens Material	Polycarbonate
Battery Venting	Vent at the bottom of the lantern
Sealing	Self-contained unit, potted with polyurethane
Weight	1.1 kg (2.45 lbs)

ENVIRONMENTAL and ELECTRICAL

Temperature Range ³	-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 a 12.5% duty cycle (code 064 - 15 flashes per minute).

³ Consistent ambient temperatures above +25°C (+77°F) may affect overall battery life. Temperatures above +80°C (+140°F) may affect output.

All specifications are subject to change without notice.



Carmanah

THE LEADER IN SOLAR LED LIGHTING SOLUTIONS



Model 601

Two Nautical Mile¹ Marine Light

SOLAR MARINE LIGHT

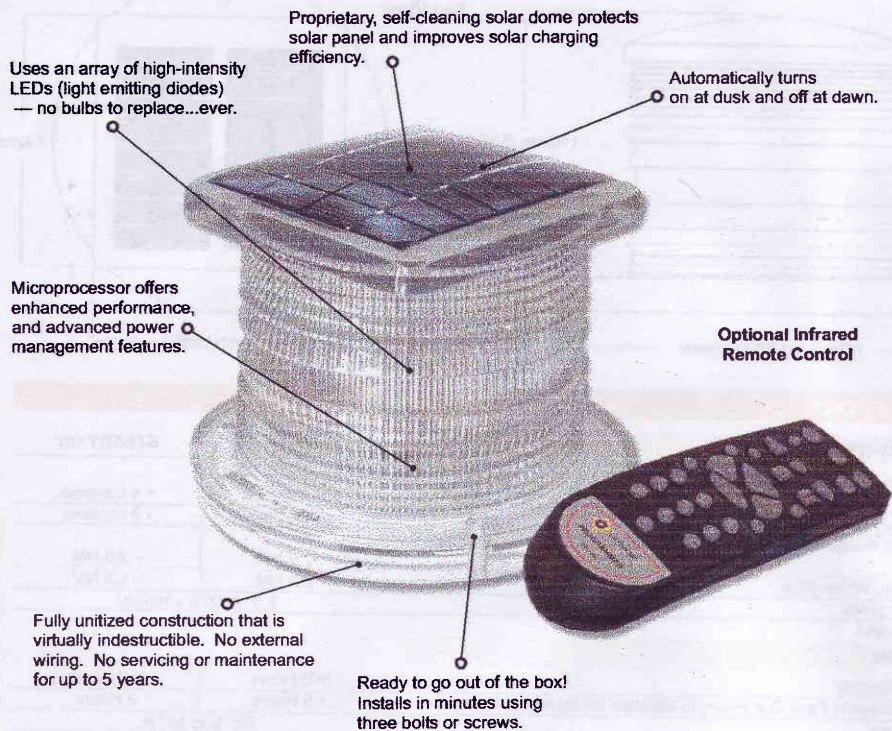
Typical Applications

- 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

Features & Benefits

- Distance of visibility up to 2 miles (3.6 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 watertight. Designed to operate reliably in harshest of environmental conditions
- Polycarbonate/polymer encapsulated construction is vandal-resistant and virtually indestructible
- Installation takes minutes and requires minimal technical expertise
- Provides up to five years of operation with no maintenance or servicing
- Will charge under nearly all weather conditions
- Up to 200 hours of operating capacity from a full charge
- Manufactured to ISO9001 Quality Assurance Standards
- 30 day satisfaction guarantee and three year warranty

pro rated



The Carmanah Model 601 is the world's most advanced, fully-integrated, solar LED two nautical mile¹ (3.6km) navigation and hazard-marking light. It installs in minutes and requires no maintenance or servicing for up to five years.

Typical Applications

The Model 601 is a multipurpose solar-powered marine light suitable for virtually any navigation or hazard-marking requirement up to 2 nautical miles in range¹.

The 601 has been used around the world for all types of industrial/commercial applications, including marking navigation, research and mooring buoys, channel and hazard markers, as well as all types of marine infrastructure and docks.

The Technology

Using an array of ultra-bright LEDs (light emitting diodes), the 601 can produce light output in five colors that meet international chromaticity requirements: green, red, amber, white and blue. It can also

produce over 200 standard flash patterns and custom patterns can be special ordered.

The 601 charges during the day, even under cloudy conditions, and turns on automatically at night. It also features sophisticated microprocessor intelligence that enables advanced light output control and battery power management, as well as ensures that the light emits precisely controlled flash rates.

30-Day Risk-Free Evaluation

Order a Model 601 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...



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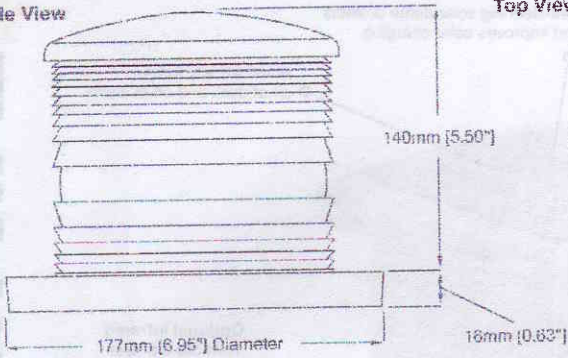
THE LEADER IN SOLAR LED LIGHTING SOLUTIONS



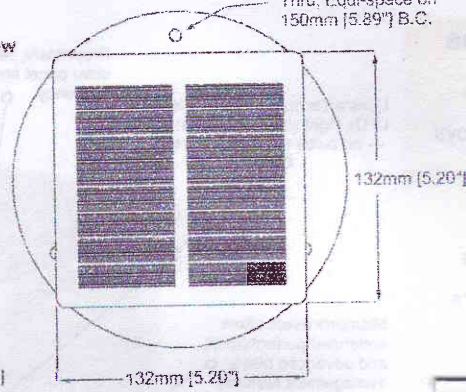
Model 601

Two Nautical Mile¹ Marine Light

Side View

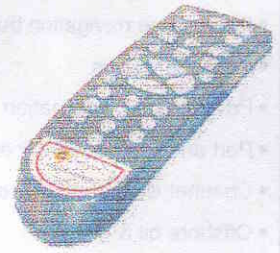


Top View



3X 7mm [0.32" Dia.]
Thru, Equi-space on
150mm [5.89" B.C.

Optional Infrared
Remote Control



SPECIFICATIONS

LIGHT OUTPUT

	FLASHING ²	STEADY ON
Effective intensity (Transmissivity constant of 0.74)		
Green	~ 11 Candela	~ 4 Candela
Red, Amber, White, Blue	~ 6 Candela	~ 2 Candela
Nominal Night Range (Employs Method of Schmidt-Olesen)		
Green	~ 2.9 NM	~ 2.0 NM
Red, Amber, White, Blue	~ 2.3 NM	~ 1.5 NM
Vertical Divergence	6.5° at 50% intensity	
Horizontal Output	360°	

OPERATION

Minimum Autonomy ³	300 Hours	150 Hours
Minimum Equivalent Peak Sun Hours to Maintain Minimum Autonomy	1.5 Hours	3 Hours
Latitude Range ⁴	55° S to 55° N	
On / Off Level	70 / 100 Lux	
Illumination Technology	8 or 16 LEDs, depending on color	
Lifespan of LEDs	Up to 100,000 Hours	
Chromaticity 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 and domed for higher efficiency
Maximum Power	1.4 Watts
Efficiency	14%

BATTERY

Type	Pure-lead thin plate with starved-electrolyte
Nominal Voltage	4 Volts
Capacity	5 Amp-hr at 10-hr discharge rate

CONSTRUCTION

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 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 dependent on flash pattern, intensity, and LED color

² "Flashing" light specifications are based on 100% intensity, falling at 12.3% duty cycle from 0.84 - 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/intensity is precisely adjusted to suit operating environment by an Authorized Carmanah Representative.

⁵ Consistent ambient temperatures above +20°C (68°F) may affect overall battery life. Temperatures above +60°C (140°F) may affect output.

All specifications are subject to change without notice.



THE LEADER IN SOLAR LED LIGHTING SOLUTIONS



Model 701

Three Nautical Mile¹ Marine Light

SOLAR MARINE LIGHT

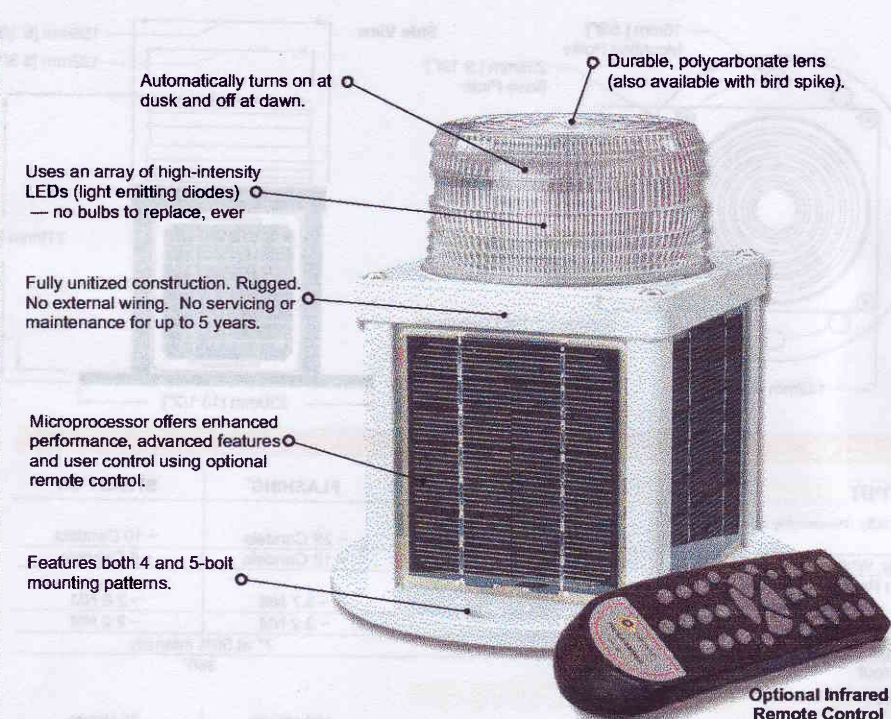
Typical Applications

- 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

PRO-RATED



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...

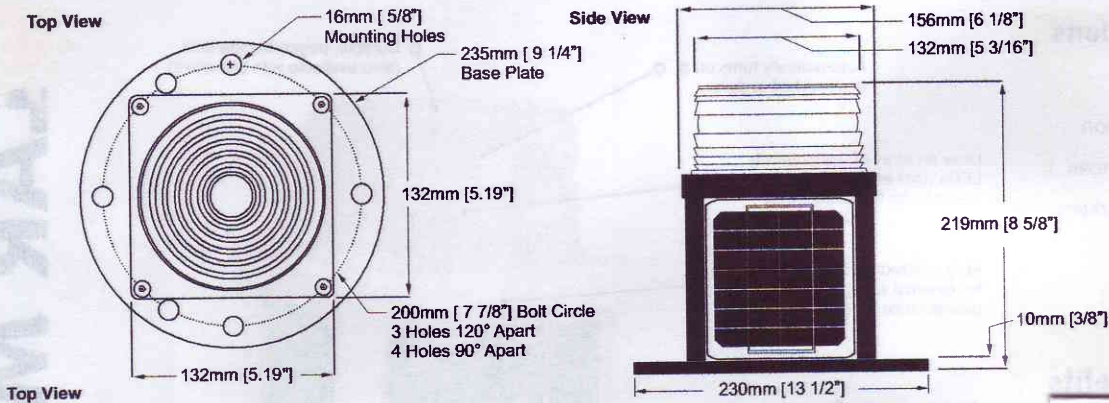


THE LEADER IN SOLAR LED LIGHTING SOLUTIONS



Model 701

Three Nautical Mile¹ Marine Light



Optional Infrared Remote Control



SPECIFICATIONS

	FLASHING ²	STEADY ON
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	
Maximum Power	Potted with UV-protected polyurethane	
Efficiency	5.6 Watts	
	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 65° 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.



THE LEADER IN SOLAR LED LIGHTING SOLUTIONS

