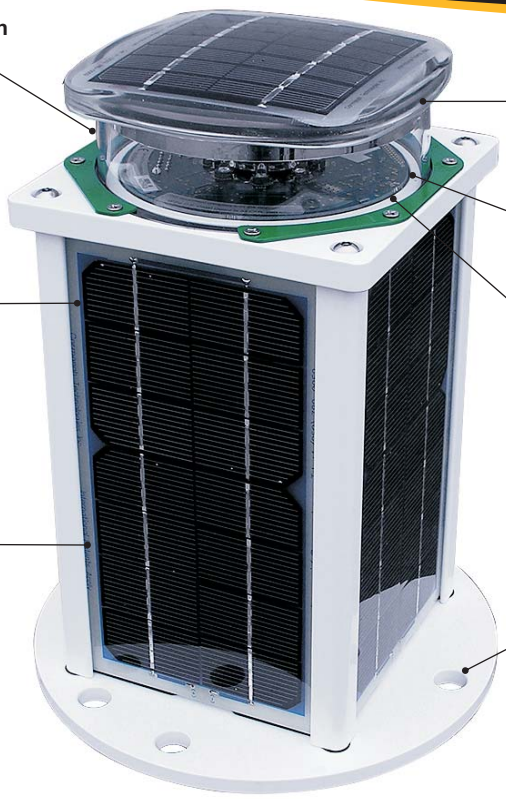
Solar-Powered LED Marine Lanterns
Model M704-5 - 4 Nautical Miles[1]

Carmanah®



Innovative optics and lens design
Means wider vertical divergence and greater light uniformity.

Self-cleaning solar dome
Proprietary, patented dome protects solar panel while improving efficiency.

Ultra bright LEDs
Uses an array of bright light emitting diodes (LEDs) -no bulbs to replace, ever.

Completely self-contained
The solar panels, batteries and LEDs are brought together into one unique product.

Automatically turns on & off
On at dusk and off at dawn.

Sealed Unit
Waterproof and vandal resistant.

Multiple mounting patterns
Features 3, 4 and 5-bolt mounting patterns.

Built to Perform in Harsh Environments

The Carmanah Model M704-5 4 Nautical Mile (7.4km) solar-powered LED lanterns are the world's most advanced, solar-powered LED navigational and hazard-marking lanterns. They are extremely compact, completely self-contained, install in minutes and require no maintenance or servicing for up to five years.

Quality Manufacturing

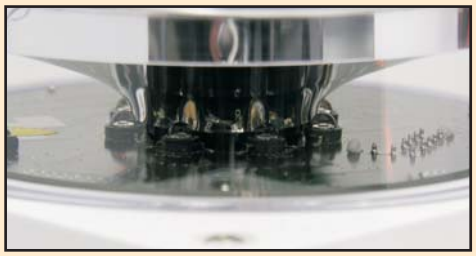
Designed and built in partnership with international coast guard agencies, the Model M704-5 is built for performance in harsh weather conditions. The Model M704-5 uses an array of ultra-bright LEDs and can be programmed with over 250 flash patterns. Manufactured in accordance with ISO 9001:2000 Quality Assurance Standards, the Model M704-5 produces light output in IALA's four international chromaticity colors: green, red, amber and white.

Reliable Technology

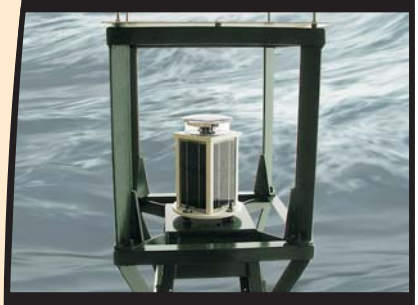
Through the innovative combination of solar power and LED technology, the M704-5 lantern charges during the day, even under cloudy conditions, and turns on automatically at night. Instead of relying on short-lived incandescent bulbs, the M704-5 uses durable, ultra-bright light emitting diodes (LEDs), which have an operating lifespan of up to 100,000 hours.

Applications:

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



Carmanah's new optics and lens design mean wider vertical divergence and greater light uniformity.



The world's most compact 4NM solar LED lantern!

CHANGE THE WORLD WITH US™

Toll Free Canada & US: 1-877-722-8877 **Worldwide: + 250-380-0052** **www.carmanah.com**

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Model M704-5 - 4 Nautical Miles[1]

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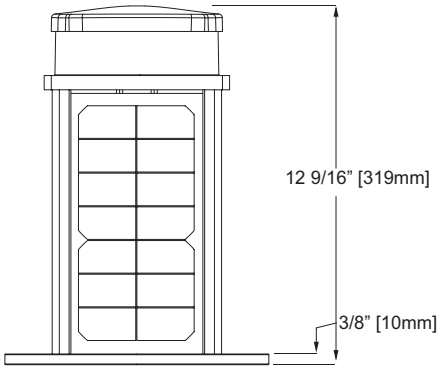
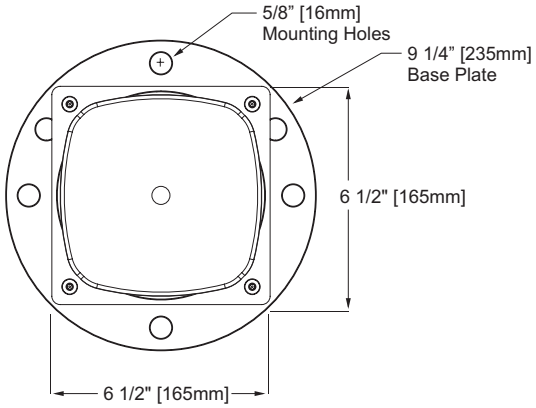
Side View



Top View



SPECIFICATIONS

LIGHT OUTPUT

	FLASHING[2]
Effective Intensity *(Transmissivity constant of 0.74)*	
Colors Available: Green, Red, Amber, White	~ 36 Candela
Nominal Night Range[1] *(Employs Method of Schmidt-Clausen)*	
Colors Available: Green, Red, Amber, White	~ 4 NM
Vertical Divergence	10°
Horizontal Output	360°

OPERATION

Autonomy[3] at full charge	600 Hours
Minimum Equivalent Peak Sun Hours to Maintain Minimum Autonomy	4.2 Hours
Latitude Range[4]	55° S to 55° N
On / Off Level	70 / 100 Lux
Illumination Technology	8 Ultra-Bright Light Emitting Diodes
Lifespan of LEDs[5]	Up to 100,000 Hours
Chromaticity of Color Output	Meets IALA specifications
Available Standard Flash Patterns *(Custom patterns available)*	256 including "steady-on" (user-adjustable)
Power Management System	MICROSOURCE™

CONSTRUCTION

Solar Panels	Mono-Crystalline Potted with UV-protected polyurethane
Battery	Sealed pure lead-tin - recyclable
Lens Material	UV stabilized polycarbonate
Battery Venting	Vent at the bottom of the lantern
Sealing	Self-contained unit, sealed with gaskets
Weight	26 lbs (11.75 kg)
Lantern base	Marine grade aluminum
Mounting	3, 4 & 5 bolt mounting pattern

ENVIRONMENTAL and ELECTRICAL

Temperature Range[6]	-40° to 176° F (-40° to +80° C)
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

REPRESENTED BY

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Optional Infrared Programmer

Optional Bird Deterrent

[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). Green.*
[3] *Actual figures for autonomy depend on the intensity level setting.*
[4] *Lanterns 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] *Amber, Red, Green: ~14 years to 80% of original effective intensity when operated at night with a 12.5% duty cycle..*
[6] *Consistent ambient temperatures above +77°F (+25°C) may affect overall battery life. Temperatures above +140°F (+60°C) may affect output.*

All specifications are subject to change without notice.

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