carmanah®

MODEL

M850

SOLAR LED MARINE LANTERN

A HIGH EFFICIENCY, COST-OPTIMIZED LANTERN SUITABLE FOR USE IN MOST SOLAR LOCATIONS.

- UP TO 387 CD (IALA PEAK)
- 3-6 NM RANGE IN ALL COLOURS
- OPTIONS FOR STANDARD OR WIDE VERTICAL DIVERGENCE
- UP TO 7.5 NM RANGE AT T=0.74 (8° FWHM)
- UP TO 10.3 NM RANGE AT T=0.85 (8° FWHM)
- GPS SYNCHRONIZED FLASH OPTION

The M850 combines a compact, high-efficiency solar engine with premium components and a rugged design for best-in-class performance at an optimal price.

Intuitive Setup & Programming

Top-mounted 4-character LED display and simple "tap to activate" functionality allows users to easily check light settings without the need for an external controller. Built-in calendar function allows for automatic de-activation during off-season months. Programmable with optional IR remote.

Scalable, Cost Effective Design

Customizable for best value-for-performance at each installation location. Choose from standard or wide divergences (for fixed or floating applications), and multiple battery pack options.

Intelligent Energy Management

Combines best-in-class, high-efficiency solar panels and MPPT (Maximum Power Point Tracking) with Carmanah's patented Energy Management System (EMS) for maximum battery life and light performance in even the harshest of environments.

Durable, Low Maintenance

Integrated solar panels, battery, electronics,and LED light source are combined in a compact, stand-alone, maintenance-free unit. Easily replaceable battery extends service life well beyond five years.

With thousands of installations worldwide, Carmanah/Sabik solar LED lights operate year-round and are trusted by:

- Australian Maritime Systems
- Brazilian Naval Commission
- Canadian Coast Guard
- CETMEF, France
- Port of Kandla, India
- Maritime and Port Authority of Singapore
- SERBA, Uruguay
- Petrobras, Brazil
- PDVSA, Venezuela
- NOAA – National Data Buoy Centre
- Panama Canal
- Suez Canal, Egypt
- Trinity House Light House Service, UK
- United States Coast Guard
- Vancouver Port Authority

Carmanah/Sabik is backed by a worldwide network of distributors. To find yours visit carmanahmarine.com or call +1.250.380.0052 (toll-free US & Canada 1.877.722.8877)
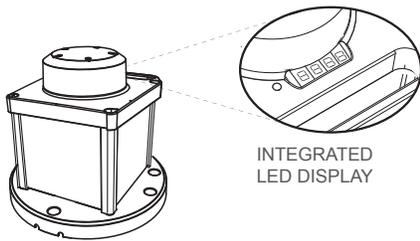
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OPTIONAL INFRARED PROGRAMMER

INTEGRATED LED DISPLAY

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SPECIFICATIONS

Optical	387 cd peak intensity (as per IALA rating); see table
	High Flux Surface Mount LEDs with colour-specific temperature-corrected LED driver provides consistent intensity under all operating conditions
	IALA compliant chromaticities; Red, Green, White, and Yellow
	Custom optical design
	250+ flash patterns (including steady-on and custom code)
	Vertical Divergence 8º or 10º (FWHM)
Energy Collection	Best-in-class high-efficiency solar cells
	Optional external charge port and charger
Battery	Multiple battery pack options available (refer to weight table) including best-in-class pack with extreme temperature range
	Battery status and voltage clearly indicated on integrated LED display
	Designed for 5 year battery life; Replaceable and recyclable
Energy Management System (EMS)	Intelligent, microprocessor EMS
	On-board diagnostics and datalogger
Automatic Light Control (ALC)	When enabled, ALC adjusts output intensity in response to unusually low amounts of sunlight to ensure continued operation
Programming	Programmable with optional infrared programmer
	Integrated 4-character LED display
GPS Synchronization	Optional GPS enables two or more lanterns to flash in unison
Construction	Premium grade UV resistant, polycarbonate lens/head and polycarbonate/polysiloxane co-polymer base
	Environmentally-friendly, super durable powdercoated aluminum chassis (applied by trivalent chromate process)
	Thermoplastic gaskets
	Waterproof, vented battery compartment
	Top colour indicator matches LED colour
	Integrated handle
Temperature	-22 to 122 ºF (-30 to 50 ºC) operating
	-40 to 176 ºF (-40 to 80 ºC) storage
Weight	Refer to weight table
Mounting	3 or 4 bolt 7.87" (200 mm) mounting pattern
Wind Loading	140 knots (72 m/s)
Ice Loading	0.03 psi (22 kg/m²)
Shock & Vibration	MIL-STD-202G (for Explosive Atmosphere) MIL-STD-202G (for Shock and Vibration)
Ingress	IP 68 immersion
	MIL-STD-202G immersion & damp heat cycling
	MIL-STD-810G rain & salt fog
Compliance	USCG PATON 33CFR66. 33CFR67 Class B & C Pending
	RoHS; WEEE

PEAK INTENSITY (IALA)

COLOUR	INTENSITY
Red	271 cd
Green	265 cd
White	387 cd
Yellow	325 cd

Note: Peak IALA intensity dependent on location. Table based on equatorial location of 12-hour night duration and 12.5% duty cycle flash code. Standard lens.
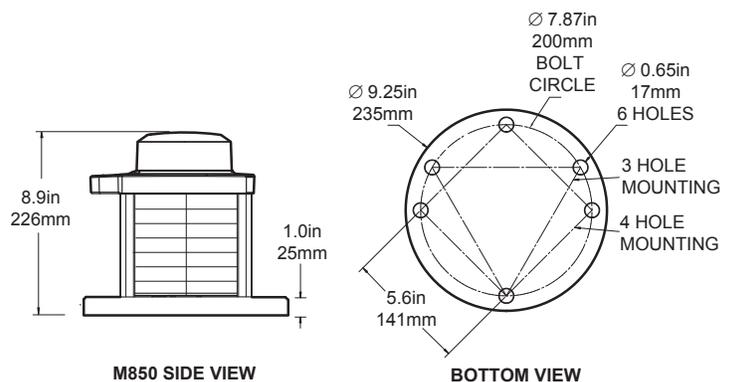
WEIGHT

MODEL		BATTERY PACK	kg	lb
M850	60X	X-cells (60 Wh)	4.5	9.9
	96E	E-cells (96 Wh)	5.3	11.6

For assistance with model selection and battery sizing for your installation location, refer to the Carmanah Marine Product Selector and solar simulator at **carmanah.com/marine/selector**

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

Today, thousands of Carmanah Marine lanterns are in use by Coast Guards, Navies, and Ports Authorities around the world.

DIMENSIONS

M850 SIDE VIEW

8.9in 226mm
1.0in 25mm

BOTTOM VIEW

∅ 7.87in 200mm BOLT CIRCLE
∅ 0.65in 17mm 6 HOLES
∅ 9.25in 235mm
3 HOLE MOUNTING
4 HOLE MOUNTING
5.6in 141mm

CONFIGURATION

MODEL	OUTPUT ▼	BATTERY ▼	LENS ▼	CONTROL ▼	OTHER ▼
M850	RED GREEN WHITE YELLOW	60X 96E	Standard Wide	GPS NON-GPS	CHARGE PORT

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