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)

**REPRESENTED BY:**

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

- **UP TO 445 CD (IALA PEAK)**
- **3-6 NM RANGE IN ALL COLOURS**
- **OPTIONS FOR STANDARD OR WIDE VERTICAL DIVERGENCE**
- **GPS SYNCHRONIZED FLASH OPTION**

To view performance in your installation location visit: www.carmanahmarine.com(selector)
### Specifications

#### Optical
- 445 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)
- Vertical Divergence 8° or 10° (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

#### 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

#### Performance Data
- Temperature:
  - -22 to 122 °F (-30 to 50 °C) operating
  - -40 to 176 °F (-40 to 80 °C) 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 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
  - RoHS; WEEE

#### Dimensions
- 8.9 in 226 mm
- 7.8 in 200 mm
- 9.25 in 235 mm
- 0.62 in 15.7 mm

#### Weight

<table>
<thead>
<tr>
<th>MODEL</th>
<th>BATTERY PACK</th>
<th>kg</th>
<th>lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>M850</td>
<td>X-cells (60 Wh)</td>
<td>4.5</td>
<td>9.9</td>
</tr>
<tr>
<td></td>
<td>E-cells (96 Wh)</td>
<td>5.3</td>
<td>11.6</td>
</tr>
</tbody>
</table>

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

### Configuration

<table>
<thead>
<tr>
<th>MODEL</th>
<th>OUTPUT</th>
<th>BATTERY</th>
<th>LENS</th>
<th>CONTROL</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>M850</td>
<td>RED GREEN WHITE YELLOW</td>
<td>60X 96E</td>
<td>Standard Wide</td>
<td>GPS NON-GPS</td>
<td>CHARGE PORT</td>
</tr>
</tbody>
</table>

Specifications subject to local environmental conditions.
Specifications may be subject to change.

Document: MARI_Spec_Sheet_M850_RevF

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