**Features:**

- High-efficiency luminous system.  
  Up to 11 nm (T=0.74), 16 nm (T=0.85).
- Vertical divergence up to 30°.
- 360° horizontal output.
- Average operation lifetime over 10 years.
- Internal photocell adjustable in lux.
- IP 68 watertightness degree (immersion resistant).
- Linear adjustment of luminous intensity.
- Double RS-232 serial port for setting adjustments by PC and remote monitoring system.
- Programming, configuration and operating status via PC, IR programmer or Bluetooth.
- Ready to integrate remote monitoring via GSM, VHF or satellite, synchronization via GPS or AIS AtoN module.
- Short-circuit, reverse-polarity and transient over-voltage protections.
- PATENTED OPTICAL SYSTEM.

The MBL 160 is a LED marine flashing lantern of short and medium range, with a great optical efficiency and low consumption, fitted with LED diodes of high intensity, reaching a maximum range of 16 nautical miles.

Ideal for on- and off-shore solar beaconing applications requiring a low consumption, such as channels, harbour entrances, jetties, piers, buoys, structures, fish farms, etc.

Its luminous source consists of an innovating lens system especially designed to take the maximum profit of LED diodes, thus obtaining an output of up to 180 Cd/W. Manufactured with high-quality and resistant materials, the MBL 160 provides a long service life under harsh marine conditions.

Designed according to IALA Recommendations.
**Optical System**

- **Light source:** 3 to 12 nos. ultra-bright LED diodes, with high-precision acrylic lens.
- **Luminous range:** Up to 11 nm (T=0.74) 16 nm (T=0.85).
- **Colours available:** White, green, red, amber and blue.
- **Vertical divergence:** From 5° to 30° (50% Io).
- **LED average life:** More than 100,000 hours.
- **Power supply:** From 9 to 36V.
- **Lantern consumption:** From 3 to 24W.
- **Idle current:** 2 mA.

**Electronic control**

- **Flash rhythms:** 256 (6 nos. user selectable).
- **Day/night threshold:** Adjustable between 10 and 400 lux.
- **Solar charge regulation function:** Regulation in 3 phases.
- **Settings:** PC / IR programmer / Bluetooth.
- **Luminous intensity adjustment:** Linear, between 10 and 100%.
- **Light intensity reduction due to low battery:** Configurable by the user.

**Materials and environment**

- **Base:** Glass-fibre reinforced polyamide PA66-GF30.
- **Lens cover:** Acrylic, UV stabilised.
- **Vibration resistance:** MIL-STD-202G, Method 204D (5G).
- **Shock resistance:** MIL-STD-202G, Method 213B.
- **Watertightness degree:** IP 68.
- **Fixings:** 3 - 4 bolts in a 200mm diameter.
- **Humidity resistance:** 100%. Pressure-compensation valve to avoid condensation.
- **Temperature range:** From -30º to 70ºC.

**Peak intensities (Cd)**

<table>
<thead>
<tr>
<th>Colour</th>
<th>Vertical divergence 5°</th>
<th>Vertical divergence 12°</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6W 12W 18W 24W</td>
<td>6W 12W 18W 24W</td>
</tr>
<tr>
<td>White</td>
<td>537 1,010 1,515 2,020</td>
<td>338 676 1,014 1,352</td>
</tr>
<tr>
<td>Green</td>
<td>439 681 1,022 1,362</td>
<td>290 580 870 1,160</td>
</tr>
<tr>
<td>Red</td>
<td>380 590 895 1,180</td>
<td>204 408 612 816</td>
</tr>
<tr>
<td>Amber</td>
<td>564 662 993 1,324</td>
<td>235 470 705 940</td>
</tr>
</tbody>
</table>

Other divergences available.

**Options**

- Infrared (IR) programmer.
- PC programming kit.
- RS-485 MODBUS serial port.
- Marine aluminium base.
- Other specifications available under request.
- MBL 160-HD (up to 30° divergence).
- MBL 160-SYNC (GPS synchronisation).
- MBL 160-TG (GSM remote monitoring).
- MBL 160-TR (Radio remote monitoring).
- MBL 160-TS (Satellite remote monitoring).
- MBL 160-AIS (AIS AtoN).