

# PMAPI-SC37-AIS

## Medium Intensity LED Marine Lantern

3 - 7 NM at 0.74T / 3.5 - 9.3 NM at 0.85T



*Class A, B and C compliant in accordance with USCG 8th District 33 CFR Part 67 for artificial island and structures, and 33 CFR Part 66 for 3 and 7 NM private navigation aids.*

### OPTIONAL FEATURES

- **GPS Synchronisation:** Optional internally mounted hardware will allow the lantern to flash in-sync with other PMAPI and third party lanterns that are GPS synced
- **External I/O port:** Allows connection to an external monitoring device or for hardwired synchronisation to other lanterns



### OVERVIEW

The PMAPI-SC37-AIS is a 3 - 7NM weather-protected marine lantern with a high intensity LED light source paired with solar panel, battery array and AIS Aid to Navigation (AtoN) transceiver.

- Low power consumption
- High energy efficiency
- High flexibility in its use
- Ability to replace batteries
- LEDs on a protected metal core PCB for maximum useful life
- LEDs monitored for excess temperature
- Flexible electronic configurations
- Use on offshore platforms, port and harbor, aquaculture, fixed or floating structures
- Multiple self-contained solar/battery configurations possible
- Available in 4 colours. Colours meet IALA chromaticity requirements

### KEY FEATURES

- **Solar options:** 40W to 140W sizing
- **Rugged, weather-resistant construction materials:** High impact resistant polycarbonate for ice, ultraviolet exposure, salt air and seawater spray at a wide range of ambient temperatures
- **High intensity, energy efficient fan beam LED array:** Maximum visible range up to 9.3 NM at 0.85T pending flash character in optimal conditions
- **IR Remote:** Powering on & off, set / retrieve configuration parameters such as flash pattern, effective intensity, day/night control, etc.
- **IALA approved colors:** Single color LED engine - white, yellow, red or green
- **Integrated bird deterrent:** No additional accessories required
- **Longevity** - Estimated average service life of 10 years

### PERFORMANCE FEATURES

- **Power consumption:** variable up to 8.3W
- **Battery voltage:** 12VDC
- **Operating voltage:** 9 to 19VDC
- **Solar Gel battery:** 35Ah to 330Ah
- **Intensity control:** Effective lantern intensity set on Schmidt-Clausen method
- **Flash character control:** 256 programmable flash characters and 2 custom flash characters
- **Day/Night transition level settings:** Programmable for active at all times or only after sunset. Day / Night level settings (sunset / sunrise transition) can be field programmed
- **Calendar control** - Programmable season on/off date
- **Input protection** - Lantern power input is reversed polarity protected for field repair
- **Ripple delay** - 0.05 to 12.7 seconds & master/slave sync options
- **Storage mode** - Automatic storage mode with adjustable automatic wake up
- **Programmable sleep and test modes**
- **Dynamic compensation circuitry for the candela low output, based on internal temperature, LED flash duration and LED color, to always keep the same programmed output intensity**

## OPTICAL CHARACTERISTICS

LED Color	WHITE	YELLOW	RED	GREEN
Light source	12 White LEDs	12 Yellow LEDs	12 Red LEDs	12 Green LEDs
Visible range (NM) <sup>1</sup>	3 - 7	3 - 5	3 - 6	3 - 6
Effective intensity range (cd) <sup>2</sup>	10 - 277 <sup>3</sup>	10 - 77 <sup>3</sup>	10 - 151 <sup>3</sup>	10 - 151 <sup>3</sup>
Horizontal divergence	360°	360°	360°	360°
Vertical divergence at 50% intensity	7°	7°	7°	7°
Peak intensity (cd)	325	130	325	325

Notes:

<sup>1</sup> Visible range based on IALA standards at atmospheric transmissivity of 0.74

<sup>2</sup> Effective intensity computed from Blondel Rey method

<sup>3</sup> Maximum Effective Intensity limited by ambient temperature and flash length.

## PHYSICAL SPECIFICATIONS

Operating temperature range (°C)	-30°C to +50°C
Operation humidity (%)	100
IP Rating (Optic)	IP68*
Body material	UV stabilized polycarbonate
Lens material	Acrylic
Mounting (Optic)	3 - 4 hole, Ø 200mm
Solar panels	Mono-crystalline
Solar body	Rotationally moulded

## DIMENSIONS

Dimensions (HxD)	925 x 700 mm   36.42 x 27.56 in
Weight	10 - 40 kg   22 - 88 lbs

## ORDERING

Catalog number scheme: PMAPI-SC37-DC-C-XX-WWW-BAT-AIST

C = Colour (G = Green, R = Red, W = White, Y = Yellow)

G = Green

R = Red

W = White

Y = Yellow

XX = Options:

00 = No Options

01 = GPS

02 = GPS and External IO

03 = External IO

WWW = Solar panel wattage

BAT = Battery size

AIS T = AIS Type

1 = Type 1

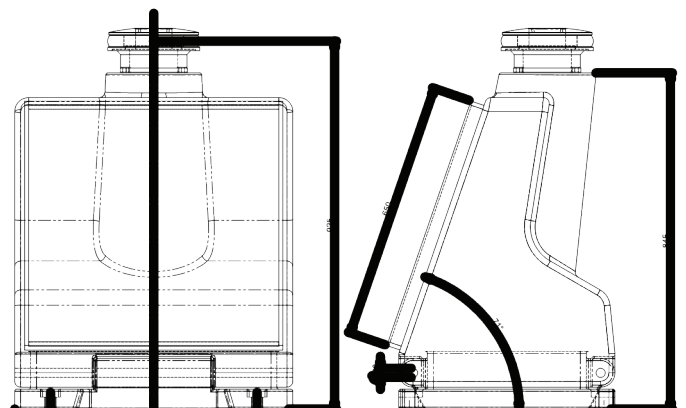
3 = Type 3

Example: PMAPI-SC37-DC-G-01-40-35-AIS1 =  
12VDC External Power, Green with GPS, 40W Solar Panel, 35Ah Battery and AIS Type 1

PMIR-1 = IR Remote

## STANDARDS

EMI/EMC	EN55015:2013 radiated and conducted emissions* EN61547:2009 Immunity FCC 47 CFR Section 15 Class A*
Optical Test	IALA Recommendation E-122 (2001) and E-200-3 Part 3 (2008)
Colour	IALA Recommendation E-200-1 Part 1
Daylight	IALA Recommendation 1038
Power Supply	IEC60945 Section 7 normal and peak voltage, and reverse polarity protection
Ingress	IP68 to IEC60529 (Optic)
Shock	MIL-STD-202G Method 213B Cond H*
Vibration	MIL-STD-202G Method 204D Cond B*
Immersion	MIL-STD-202G Method 104A Cond B withstands immersion to 1m depth* (Optic)



*\*All values are subject to change without notice.*

## AIS Aid to Navigation (AtoN) Transceiver

The PMAPI-AIS Solution is an internationally certified AIS AtoN with the world's lowest power consumption. Available as either Type 1 or Type 3 configurations, it offers a full range of features, including transmission of virtual AtoN targets, simple integration with lanterns and external sensors, plus over the air configuration and chaining.

### Electrical Specification

Power Consumption Type 1 AtoN (FATDMA)	Less than 0.09Ah/day (with 3 minute position reporting rate)
Power Consumption Type 3 AtoN (RATDMA)	Less than 0.8 Ah/day (with 3 minute position reporting rate)

### Interfaces - via optional sensor interface

Five isolated digital inputs	✓
Two isolated analogue inputs - 0 to 36VDC	✓
Three non-isolated analogue inputs	✓
Two relay drive outputs	✓
Analogue current sense (up to 5A)	✓
Four non-isolated logic level input / output channels	✓
NMEA0183 (IEC61162-1/2) port	✓
Two RS232 ports - at 38400 baud	✓
SDI-12 interface	✓

### Standards Compliance

AIS Standard	IEC62320-2:2008
Environmental	IEC60945:2002-08
GPS Performance Standard	IEC61108-1:2002-07
Safety	EN60950-1:2006 +A11:2009 +A1:2010 +A12:2011

### VHF Transceiver

Transmitter	x 1
Receiver	x 2
Frequency	156.025 to 162.025MHz in 25KHz steps
Output Power	1W, 2W, 5W or 12.5W
Channel Bandwidth	25KHz
Channel Step	25KHz
Modulation Modes	25KHz GMSK (AIS, transmit & receive)
Bit Rate	9600 b/s (GMSK)
Receiver Sensitivity	< - 110dBm @ 20% PER
Adjacent Channel Selectivity	70dB

### GPS Receiver & Antenna

Channels	50
IEC 61108-1	Compliant
GPS Antenna	Internal or external available separately
Glonass	Option available
Spurious Response Rejection	70dB

### AtoN Functions

Type 1 and Type 3 options available	✓
Supports configuration by VDL command	✓
Chaining option available as standard	✓
Customisable sensor interfacing	✓
X 10 Virtual AtoN support	✓

### Environmental

Waterproof	IP66 and IP67 rated for water ingress
IEC 60945	'Exposed' category
Operating Temperature	-25°C to +55°C

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