

User Manual

rescueME)) **PLB1**

**Personal Locator  
Beacon**

English



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## IN CASE OF EMERGENCY

### USE ONLY IN CASE OF GRAVE OR IMMINENT DANGER

- PULL THE ANTENNA OUT FROM THE BODY TO ITS FULL EXTENT USING THE BLACK TAB.
- LIFT THE FLAP UP
- PRESS THE ON KEY FOR ONE SECOND TO ACTIVATE THE BEACON.
- THE GREEN LED WILL FLASH TO INDICATE ACTIVATION
- RELEASE THE ON KEY.
- ENSURE THE ANTENNA IS HELD VERTICALLY WHILE OPERATING THE PLB
- THE STROBE LIGHT WILL START FLASHING TO INDICATE IT IS ACTIVATED



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## **1. GENERAL**

### **1.1 Exposure to RF Electromagnetic Energy**

This product also complies with EN62479 (EU) and RSS-102 (Canada).

### **1.2 Warnings**

-  It is a legal requirement to register your PLB with your National Authority.
-  Only use your PLB in a situation of grave and imminent danger. Deliberately misusing your PLB or setting it off accidentally may result in prosecution and a fine.
-  Your PLB contains small lithium batteries. Please see section 6 for information on safe transportation.
-  The battery in your PLB should be replaced immediately if it has been activated, or if the test indicator shows the battery as 'used', or if the expiry date marked on the unit has been exceeded.
-  THIS PLB WILL NOT FLOAT, unless fitted with a flotation lanyard. The lanyard will ensure your PLB will not sink and can be retrieved from the water.
-  The PLB1 is not designed and intended for operation while floating in water. In the case of exceptional circumstances during operation the beacon shall always be kept above the water.
-  Please read these instructions carefully. Failure to follow the guidance in this manual may result in loss of warranty.

### **1.3 Model designators**

The Ocean Signal PLB is available in two variants. The rescueME PLB1 has a GPS receiver built in for maximum position accuracy. The rescueME PLB2 is a version without the GPS receiver. This manual covers both variants, but section 5.1.2 and 7.1.2 and other references to the GPS do not apply to the PLB2.

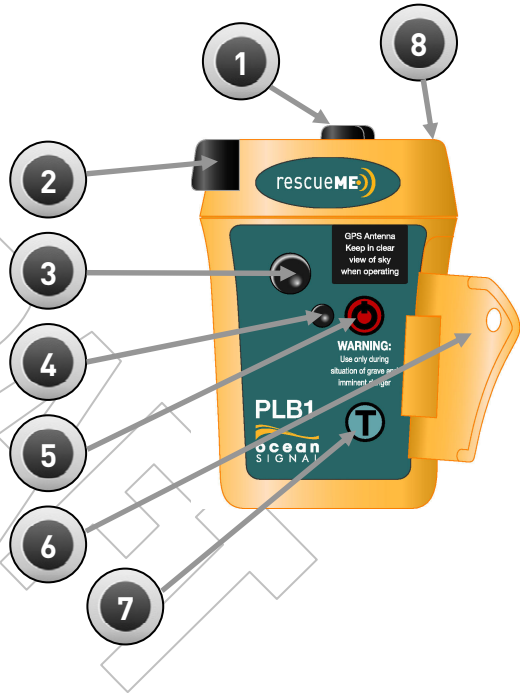
### **1.4 Registration**

To register your beacon, contact your national registration authority via post, email or online. Provide your 15 digit HEX ID (UIN), 5 digit checksum if required, your contact details and emergency contact information. Some countries also require additional information such as boat type and identification or alternative emergency contacts.

For USA the registration is at [www.beaconregistration.noaa.gov/](http://www.beaconregistration.noaa.gov/)

## 2. PLB1 OVERVIEW

- 1) Antenna rewind knob
- 2) Antenna pull grip
- 3) Strobe light
- 4) Indicator LED
- 5) **ON** Key (Under Flap)
- 6) Lift up flap
- 7) **TEST** Key(Under Flap)
- 8) Lanyard fixing (on rear of case)



## 3. FALSE ALERTS

False alerts cause the rescue authorities unnecessary time and expense. To avoid false alerts make sure your PLB is safely stowed with the protective cover closed and the antenna fully wound in. Make sure that there is no excessive pressure applied to the protective cover. Ensure that anybody carrying the PLB is fully aware that this device is for emergencies and should only be used in situations of grave and imminent danger.

If you accidentally activate your beacon or otherwise set it off when a rescue is not required, contact your local emergency services as soon as possible and advise them of your beacon's 15 digit HEX code (UIN), your current location and the time the beacon was first activated.

For USA phone: 1-800-851-3051 (USAF Rescue Coordination Center)

For UK phone: +44 (0)1326 317575. (UKCG)

## 4. OPERATION

Ensure that your PLB1 is always fitted with an unused battery that is within the marked expiry date. Failure to do so may result in reduced operating time is used in a real emergency. Please observe the recommendations on testing in section 5.

### 4.1 Activation

Only activate your PLB1 in situations requiring emergency assistance from the rescue authorities. Deliberate misuse of your PLB may result in a fine.

- To activate your PLB in an emergency, pull the black antenna tab out completely.
- Lift the protective flap and press the **ON** key for one second until the green starts LED flashing and then release the key.



Do not force the flap through more than 180°, otherwise the hinge may break.

- During operation the green LED will flash once every five seconds while the GPS is turned on and obtaining a fix. Once a fix is obtained, the green LED will flash quickly three times.
- Each time a 406MHz transmission is made the LED will flash quickly five times; green for transmission with a GPS position and red for a transmission without a position.
- The Red LED will flash every 2.5 seconds while the 121.5MHz homing beacon is active.
- When operating the PLB over water, tether the beacon to your body or the liferaft and keep the PLB clear of water.
- Hold your beacon laying flat with the antenna standing vertically. Keep the area marked 'GPS Antenna' free from obstruction, which would interfere with the GPS reception.



The PLB does not transmit an alert until approximately 50seconds has elapsed. This allows time to deactivate the unit if accidentally turned on. The homing beacon is not activated until after the first alert is sent.



### 4.2 Deactivation

To deactivate your PLB after use or if it is accidentally activated, press the **ON** key for one second until the indicator LED flashes red twice, then release. Rewind the antenna using the knob on the top of the PLB. Do not push the antenna back into the PLB as this may cause it to be damaged.

## 5. MAINTENANCE AND TROUBLESHOOTING

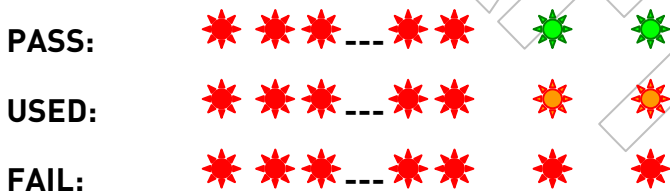
Your PLB will require little maintenance except periodic cleaning, if required. Always use a damp cloth to clean the case and dry thoroughly. Do not use solvents or other cleaning fluids as this may cause the plastics to deteriorate. Ensure the antenna is free to unwind.

### 5.1 Testing

Routine testing of your PLB is recommended to ensure it is in good working order if needed, but please follow the guidance notes below on the frequency that tests should be carried out. Please remember that each test will reduce the battery capacity slightly and reduce the operation time of your PLB during an emergency.

### 5.2 Beacon test

To test your PLB1 is functioning correctly, press and hold the **TEST** key for one second. The red LED will come on to indicate the switch is depressed, followed by the red LED flashing rapidly. The switch may now be released. The strobe light will flash once and the indicator LED will flash one or more times in two groups to indicate the pass and fail status. The number of green/amber flashes indicates the battery status as shown in the table below.



Green / Amber Indicator. <i>Chages to Amber after 1 hour of use</i>		Red indicator
No of Flashes	No of Hours Use	Type of Failure
1 Flash	0 to 1hr 59min	121.5MHz homer
2 Flashes	2hrs to 3hrs 59min	406MHz generation
3 Flashes	4hrs to 5hrs 59min	406MHz power amp
4 Flashes	6hrs to 7hrs 59min	Replace battery
5 Flashes	8hrs to 9hrs 59min	Other failure
6 Flashes	10hrs +	

- ⚠ Pull antenna out fully before commencing the test. Retract the antenna after the test.
- ⚠ Because the test transmits a short burst on the aircraft distress frequency of 121.5MHz, please only carry out this test in the first five minutes of each hour.
- ⚠ It is recommended to test your PLB once a month.
- ⚠ The amber test result is an electronic witness that indicates the battery has been used for over one hour or the allowed number of tests has been exceeded. The PLB will still operate normally in distress, but the battery should be replaced to ensure the full operating life when your PLB is needed.



### 5.2.1 GPS test

To test the GPS function of your PLB press and hold the **TEST** key for ten seconds. Initially the red LED will illuminate while the button is held and then start flashing. After ten seconds the LED will change to a long red flash and a short green flash until either a fix is obtained or the GPS test fails. A successful test will be indicated by the strobe flashing and the green LED flashing. The number of green flashes indicates one more than the number of GPS tests remaining. A failure is indicated by the red LED flashing. The test can be ended by holding the **TEST** key down for five seconds.

- ❗ Ensure that the PLB has a clear view of the sky when performing the GPS test. Make sure the area marked 'GPS antenna' is not obstructed.
- ❗ Do not test the GPS operation more than once a year as this will reduce the operating time during an emergency. (The maximum number of GPS allowed is limited to ten over the life of the battery. After ten tests the GPS test will fail to activate)

## 6. BATTERIES

The PLB1 contains Lithium batteries for long operating life. Your battery must be replaced either after the expiry date or after the PLB has been activated, even if only for a short period of time. Battery replacement must be done at an Ocean Signal authorised battery replacement centre.

When shipping your PLB the following guidance and regulations should be followed, but you are advised to contact your nearest battery replacement centre or Ocean Signal prior to shipping as regulations may have changed. The PLB1 battery contains <2g of lithium.

- Always pack your PLB securely in a stout cardboard carton. Ocean Signal advises that you keep the original packaging in case of return for service.
- For surface transport the PLB may be shipped 'excepted' under special provision 188.
- For air transport the PLB should be shipped as category UN3091 and packed under IATA packing instruction 970 section II. If you are hand carrying your PLB on an aircraft please contact you airline for advice.

### 6.1 Disposal

Care should be taken when disposing of your PLB when it is no longer required. It is recommended to remove the battery from the PLB by removing the case lid. The case screws are covered by the top label. Dispose of the battery in accordance with local waste regulations. Please note that the PLB1 is not user serviceable and removing the lid will invalidate the warranty.

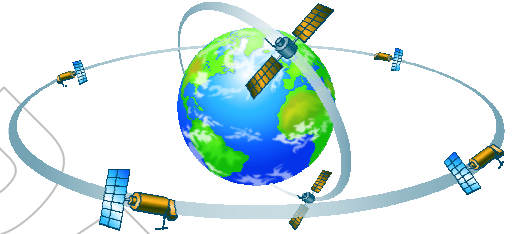
## **7. APPENDIX**

### **7.1 System Overview**

#### **7.1.1 COSPAS/SARSAT System**

The COSPAS/SARSAT system utilises two satellite arrays to provide distress alert and location data to search and rescue authorities. The GEOSAR system can provide near immediate alerting within the coverage of the receiving satellite.

The LEOSAR system provides coverage of the polar region beyond the range of the GEOSAR system. It can calculate the location of distress events using Doppler processing techniques and is less susceptible to obstructions which could block a signal in a given direction. The system is comprised of instruments on board the satellites which detect the signals from the distress beacons. Ground receiving stations, referred to as Local Users Terminals (LUTs) receive and process the satellite downlink signal to generate the distress alerts. The distress alerts, generated by the LUTs, are then received by Mission Control Centres (MCCs) which then forward the alert to Rescue Co-ordination Centres (RCCs), Search and Rescue Points of Contacts (SPOCs) and other MCCs.



#### **7.1.2 GPS System**

The GPS system is a satellite array that enables a GPS receiver to determine its position around the globe. There are a minimum of 24 satellites orbiting the Earth providing accurate position, velocity and time information. The PLB1 PLB has a built in 66 channel GPS receiver and antenna allowing reception of this positional data. The received position is then coded into the PLB emergency transmission thus enabling search and rescue teams to narrow the search area and increase the effectiveness of the rescue operation.

### **7.2 Accessories**

To be completed

## 7.3 Specifications

### 406MHz Transmitter

Frequency .....	406.040 MHz $\pm$ 1KHz
Output Power .....	5W Typical
Modulation .....	Phase $\pm$ 1.1 Radians Pk (16K0G1D)
Encoding .....	Biphase L
Rate.....	400 bps

### 121.5MHz Transmitter

Frequency .....	121.5 MHz
Output Power .....	25-100mW PEP
Modulation .....	Swept Tone AM (3K20A3X)
Modulation Depth .....	~97%
Frequency Stability .....	$\pm$ 50ppm
Duty Cycle .....	~35%

### Low Duty Cycle Strobe

Light Type .....	High Intensity LED
Light Colour / Intensity .....	White / 1candela (typ)
Flash Rate .....	20-30 per minute

### Battery

Type.....	Lithium Manganese Dioxide (LiMnO2)
Operating .....	>24Hours @ -20°C
Replacement Interval .....	7 years

### GPS Receiver

Satellites Tracked .....	66 Channel
Sensitivity .....	-148dBm
Cold Start Re-acquisition .....	-163dBm
GPS Antenna .....	Microstrip Patch

### General

Height of Body .....	76mm
Width of Body .....	52mm
Depth of Body.....	32mm
Weight .....	115grams

### Environmental

IEC60945 Category .....	Portable
Operating Temperature .....	Class 2 -20C to +55C
Storage Temperature .....	Class 2 -30C to +70C
Waterproof .....	15m depth

## **7.4 Approvals**

### **7.4.1 European Declaration of Conformity**

<b>English</b>	Hereby, Ocean Signal Ltd declares that this PLB is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC
<b>Finnish</b>	Ocean Signal Ltd vakuuttaa täten että PLB tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen
<b>Dutch</b>	Hierbij verklaart Ocean Signal Ltd dat het toestel [type van toestel] in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG
<b>French</b>	Par la présente Ocean Signal Ltd déclare que l'appareil PLB est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE
<b>Swedish</b>	Härmed intygar Ocean Signal Ltd att denna PLB står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG
<b>Danish</b>	Undertegnede Ocean Signal Ltd erklærer herved, at følgende udstyr PLB overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF
<b>German</b>	Hiermit erklärt Ocean Signal Ltd, dass sich dieser/diese/dieses PLB in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet".
<b>Greek</b>	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Ocean Signal Ltd ΔΗΛΩΝΕΙ ΟΤΙ PLB ΣΥΜΜΟΡΦΟΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ
<b>Italian</b>	Con la presente Ocean Signal Ltd dichiara che questo PLB è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE
<b>Spanish</b>	Por medio de la presente Ocean Signal Ltd declara que el PLB cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE
<b>Portuguese</b>	Ocean Signal Ltd declara que este PLB está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE

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### 7.4.2 Country of Intended Use (EU requirement)

Austria	✓	Germany	✓	Netherlands	✓
Belgium	✓	Greece	✓	Poland	✓
Bulgaria	✓	Hungary	✓	Portugal	✓
Cyprus	✓	Ireland	✓	Romania	✓
Czech Republic	✓	Italy	✓	Slovakia	✓
Denmark	✓	Latvia	✓	Slovenia	✓
Estonia	✓	Lithuania	✓	Spain	✓
Finland	✓	Luxembourg	✓	Sweden	✓
France	✓	Malta	✓	United Kingdom	✓

### 7.4.3 Industry Canada Approval

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

## **7.5 Limited Warranty**

Your Ocean Signal rescueME PLB1 is warranted against manufacturing defects in materials and workmanship for a period of 7 years from the date of purchase and in accordance with the following conditions.

Ocean Signal will at its discretion, repair or replace faulty product free of charge including return carriage to the owner. Proof of purchase shall be required in order for a warranty claim to be valid from the original purchaser. All claims shall be made in writing to Ocean Signal or an approved service dealer.

Ocean Signal shall not be liable to the buyer under the above warranty:

- for any repairs or modifications carried out on the PLB using parts that are not supplied or approved by the manufacture Ocean Signal including batteries and for work carried out other than by Ocean Signal or approved service dealers,
- for any part, material or accessory that is not manufactured by Ocean Signal the consumer will be covered by the guarantee / warranty offered to Ocean Signal by the manufacturer or supplier,
- for product which has not been fully paid for,
- for any product supplied by Ocean Signal to a customer under an alternative warranty agreement.
- for the Medium Term Frequency Stability of the TCXO(oscillator) which is only warranted for a period of five years from date of manufacture.

The Battery is only warranted until the date of expiry and provided the unit is tested in accordance with the information in the user manual. This warranty does not apply to a used battery as indicated by the electronic witness (see page 8).

The following specific items are excluded from this warranty:

- lift up flap and associated mechanism,
- retractable antenna.

This warranty does not affect your statutory rights. This warranty is to be interpreted under English law.

For further assistance please contact our Technical Service Department.

Email: [service@oceansignal.com](mailto:service@oceansignal.com)

DRAFT

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