



User Manual



# Personal Locator Beacon

English





© 2013 Ocean Signal Ltd

The technical data, information and illustrations contained in this manual were believed to be correct at the time of print. Ocean Signal Ltd. reserve the right to change specifications and other information contained in this manual as part of our continual improvement process.

No part of this manual may be reproduced, stored in a retrieval system or transmitted in any form, electronic or otherwise, without the prior permission of Ocean Signal Ltd.

No liability can be accepted for any inaccuracies or omissions in this manual.

Ocean Signal® and rescueME® are registered trademarks of Ocean Signal Ltd.

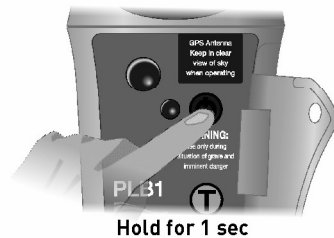
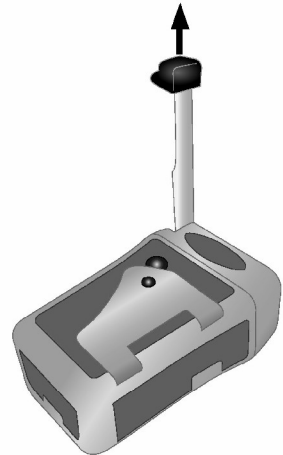
# IN CASE OF EMERGENCY



**USE ONLY IN CASE OF GRAVE AND IMMINENT DANGER**



- **PULL THE ANTENNA OUT FROM THE BODY TO ITS FULLEST EXTENT USING THE BLACK TAB**
- **LIFT THE FLAP UP**
- **PRESS THE ON KEY FOR 1 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**



**NOTE:** Refer to section 3.2 for deactivation instructions.

|           |   |           |
|-----------|---|-----------|
| <b>1.</b> | <b>GENERAL</b>                            | <b>5</b>  |
| 1.1       | Exposure to Electromagnetic Energy        | 5         |
| 1.2       | Warnings                                  | 5         |
| 1.3       | COSPAS/SARSAT System                      | 5         |
| <b>2.</b> | <b>PLB1 OVERVIEW</b>                      | <b>6</b>  |
| <b>3.</b> | <b>OPERATION</b>                          | <b>7</b>  |
| 3.1       | Activation                                | 7         |
| 3.2       | Deactivation                              | 8         |
| 3.3       | False Alerts                              | 8         |
| <b>4.</b> | <b>TESTING</b>                            | <b>9</b>  |
| 4.1       | Beacon Test                               | 9         |
| 4.2       | GPS Test                                  | 10        |
| 4.3       | Special note for Commercial and DoD Users | 10        |
| <b>5.</b> | <b>APPENDIX</b>                           | <b>11</b> |
| 5.1       | Maintenance                               | 11        |
| 5.2       | Battery                                   | 11        |
| 5.3       | Transport                                 | 11        |
| 5.4       | Disposal                                  | 11        |
| 5.5       | Specifications                            | 12        |
| 5.6       | Approvals                                 | 13        |
| 5.6.1     | European Declaration of Conformity        | 13        |
| 5.6.2     | Country of Intended Use (EU requirement)  | 13        |
| 5.6.3     | Industry Canada Approval                  | 13        |
| 5.7       | Registration                              | 13        |
| 5.8       | Limited Warranty                          | 14        |










## 1. GENERAL

### 1.1 Exposure to Electromagnetic Energy

This product complies with EN50371 (EU) and RSS-102 (Canada).

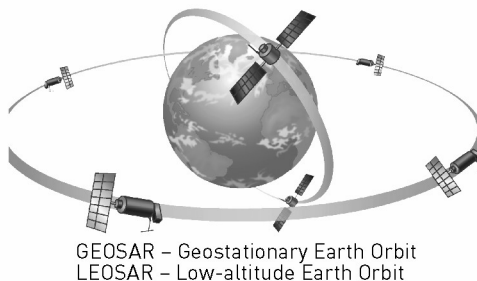
### 1.2 Warnings

-  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 mis-using your PLB or setting it off accidentally may result in prosecution and a fine.
-  Your PLB contains small lithium batteries. Please see section 5 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 pouch.
-  The PLB1 is not designed to be operated floating in water. Please hold above the water when activated.
-  Please read these instructions carefully. Failure to follow the guidance in this manual may result in loss of warranty.

### 1.3 COSPAS/SARSAT System

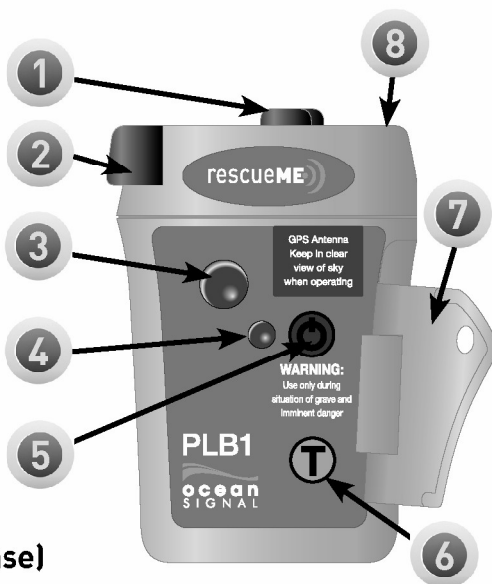
The COSPAS/SARSAT system uses two satellite arrays to provide distress alert and location data to search and rescue authorities. The GEOSAR system can provide near immediate alerting within the coverage of the receiving satellite. The LEOSAR system provides coverage of the polar region beyond the range of the GEOSAR system.

Ground receiving stations, referred to as Local Users Terminals (LUTs) receive and process the satellite downlink signal to generate the distress alerts, which 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.



## 2. PLB1 OVERVIEW

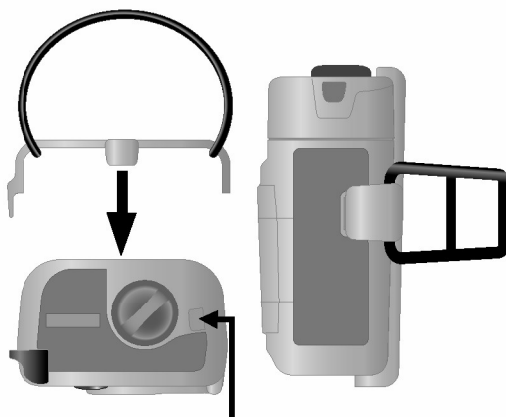
1. **Antenna rewind knob**
2. **Antenna pull grip**
3. **Strobe light**
4. **Indicator LED**
5. **ON key (under flap)**
6. **Test key (under flap)**
7. **Lift up flap**
8. **Lanyard fixing (on rear of case)**



The PLB is supplied with a clear label to protect the UIN information on the rear of the product. Please fit this before use.

The unique cradle mounting system allows the PLB to be easily attached to a belt, clothing or other protective equipment. Simply fit the rubber strap around the mounting point and attach to the cradle as shown.

The cradle then clips to the PLB at the four fixing points.  
The PLB can also be carried in the supplied flotation pouch. Secure the pouch to your clothing using the belt loop on the rear of the pouch.



 **Secure PLB1 using lanyard attachment**











**Once affixed using the cradle or pouch, the PLB should be securely tethered to your person or clothing using the supplied lanyard. This will guard against accidental loss if the PLB is unknowingly removed from its housing.**

### 3. OPERATION

#### **WARNING: USE ONLY IN SITUATIONS OF GRAVE AND IMMINENT DANGER MISUSE MAY RESULT IN A SEVERE PENALTY**

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 operation time when used in a real emergency. Please observe the recommendations on testing in section 4.

#### 3.1 Activation

-  Only activate your PLB 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 LED flashes, 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. Keep the PLB clear of water when operating. When operating on land, place the PLB flat on the ground if possible.
-  Keep 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.



**Hold for 1 sec**

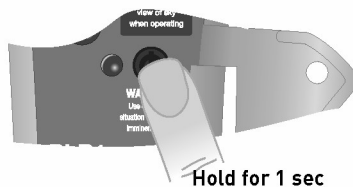
**NOTE: the PLB does not transmit an alert until approximately 50 seconds has elapsed. This allows time to deactivate the unit if accidentally turned on.**

## 3.2 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 by turning the knob on the top of the PLB clockwise.

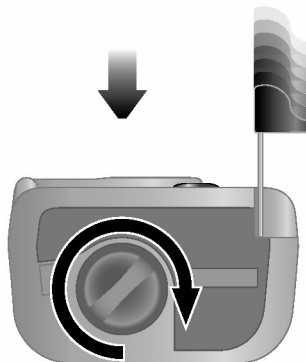


**Do not push the antenna back into the PLB as this may cause it to be damaged.**



## 3.3 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 anyone 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.

The UIN is printed on the label on the rear of the PLB.

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

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

## 4. TESTING



**NOTE:** Allow at least 30 seconds between each test and/or activation

After all indicators have ceased flashing, the unit may still remain active for a short period of time.

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.

### 4.1 Beacon Test

**Pull the antenna out fully before commencing the test. Retract the antenna after the test.**



To test your PLB1 is functioning correctly, press and hold the TEST key. 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. After a delay, the strobe light will flash once and the indicator LED will flash to show the pass or fail status.

**Note:** This status indication is repeated a second time after a short delay.

The number of green/amber flashes in each group indicates the battery status as shown in the table below.

| Green /Amber Indicator<br><i>Changes 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 +            |                   |



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.

## 4.2 GPS Test

**WARNING: AS TESTING THE GPS RECEIVER EXPENDS SIGNIFICANT AMOUNTS OF BATTERY ENERGY DO NOT TEST THE GPS OPERATION MORE THAN ONCE A YEAR. TESTING THE GPS RECEIVER IS LIMITED TO 10 TESTS OVER THE LIFETIME OF THE BATTERY, AFTER THIS THE GPS TEST WILL FAIL TO ACTIVATE.**

**THIS TEST MUST ONLY BE PERFORMED WHERE THE PLB HAS A CLEAR AND UNOBSTRUCTED VIEW OF THE SKY. THIS IS REQUIRED TO ALLOW THE GPS RECEIVER TO ACQUIRE A SIGNAL FROM SUFFICIENT SATELLITES TO ALLOW IT TO DETERMINE A POSITION. MAKE SURE THE AREA MARKED “GPS ANTENNA” IS NOT OBSTRUCTED.**

Press and hold the TEST key. The LED will illuminate red to indicate the key has been pressed, then start flashing. Shortly after, the LED will cease flashing and become a steady red light. The TEST key can now be released.

During the GPS test the LED will repeat a long red flash followed by a short green flash until either a position 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 (eg 8 flashes = 7 tests remaining). A failure is indicated by the red LED flashing. The test can be ended by holding the TEST key for five seconds.

## 4.3 Special note for Commercial and DoD Users

Should it not be possible to maintain the suggested test schedules, the interval for the two tests detailed above is:

Recommended:

Section 4.1 Beacon Test: 6 monthly

Required:

Section 4.1 Beacon Test: Annually

Section 4.2 GPS Test: Annually

## **5. APPENDIX**

### **5.1 Maintenance**

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.

### **5.2 Battery**

The PLB1 contains Lithium batteries for long operating life. Your battery must be replaced 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.

### **5.3 Transport**

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 your airline for advice.

### **5.4 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.

## 5.5 Specifications

### 406Mhz Transmitter

|              |   |
|--------------|---|
| Frequency    | 406.037 MHz $\pm$ 1KHz                  |
| Output Power | 5W Typical                              |
| Modulation   | Phase $\pm$ 1.1 Radians Pk<br>(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 | White              |
| Intensity    | 1 candela (typ)    |
| Flash Rate   | 20-30 per minute   |

### Battery

|                      |  |
|----------------------|--|
| Type                 | Lithium Manganese Dioxide<br>(LiMnO <sub>2</sub> ) |
| Operating            | >24hrs @-20°C                                      |
| Replacement Interval | 7 years  |

### GPS Receiver

|                           |                  |
|---------------------------|------------------|
| Satellite Channels        | 66 (Acquisition) |
| 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            |



## 5.6 Approvals

### 5.6.1 European Declaration of Conformity

Hereby, Ocean Signal Ltd. declares that the radio equipment type rescueME PLB1 is in compliance with Directive 2014/53/EU.

See [http://oceansignal.com/wordpress/wp-content/uploads/PLB1\\_RED\\_DofC.pdf](http://oceansignal.com/wordpress/wp-content/uploads/PLB1_RED_DofC.pdf)



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

|                |   |            |   |                |   |
|----------------|---|------------|---|----------------|---|
| Austria        | 3 | Germany    | 3 | Netherlands    | 3 |
| Belgium        | 3 | Greece     | 3 | Poland         | 3 |
| Bulgaria       | 3 | Hungary    | 3 | Portugal       | 3 |
| Cyprus         | 3 | Ireland    | 3 | Romania        | 3 |
| Czech Republic | 3 | Italy      | 3 | Slovakia       | 3 |
| Denmark        | 3 | Latvia     | 3 | Slovenia       | 3 |
| Estonia        | 3 | Lithuania  | 3 | Spain          | 3 |
| Finland        | 3 | Luxembourg | 3 | Sweden         | 3 |
| France         | 3 | Malta      | 3 | United Kingdom | 3 |

### 5.6.3 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.

## 5.7 Registration

To register your beacon, contact you national registration authority via post, email or on-line. 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 UK registrations go to:**  
**For USA registrations go to:**

**[www.gov.uk/406beacon](http://www.gov.uk/406beacon)**  
**[www.beaconregistration.noaa.gov/](http://www.beaconregistration.noaa.gov/)**

## **5.8 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 excluding the cost of shipping. 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 cost of shipping product to and from the customer.

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)



BACK COVER

PLB1

730S-01261

USER MANUAL

912S-01260

Ocean Signal Ltd.  
Unit 4, Ocivan Way  
Margate  
CT9 4NN  
United Kingdom

[info@oceansignal.com](mailto:info@oceansignal.com)  
[www.oceansignal.com](http://www.oceansignal.com)

