PLB3

Personal Locator Beacon (Incorporating AIS)

DOWNLOAD THE FULL USER MANUAL
oceansignal.com/products/plb3

GET THE MOBILE APP. TO SEE YOUR BEACON'S TEST INFORMATION

Android iOS

OWNER DETAILS

Name

Organisation

CONTACT

Tel.

Email

BEACON REGISTRATION

It is the owner's responsibility to register this beacon with the appropriate National authority before operation.

Documentation is provided within the packaging with information regarding registration with the relevant body to comply with the configuration requirements of the beacon.

ATTACH YOUR BEACON DETAILS HERE

Warranty Information

Limited Warranty

Your Ocean Signal product is warranted against manufacturing defects in materials and workmanship for a period of 2 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 or distributor.

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

- for any repairs or modifications carried out on the product using parts that are not supplied or approved by the manufacturer 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 of such a component,
- for product which has not been fully paid for,
- for any product supplied by Ocean Signal to a customer under an alternative warranty or commercial agreement,
- for the cost of shipping product from the customer to Ocean Signal.

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 as noted by the electronic witness stored within the product.

The following specific item is excluded from this warranty:

- Damage to the antenna

This warranty does not affect your statutory rights.

Extended Warranty

ENTER YOUR PRODUCT DETAILS TO GAIN THE EXTENDED WARRANTY PERIOD

Apply for free at www.oceansignal.com/warranty

By entering your product details you can add 3 years to the warranty period.
For full details on extended warranty on this product see www.oceansignal.com/warranty.

For further assistance please contact our Technical Service Department.
Email: info@oceansignal.com

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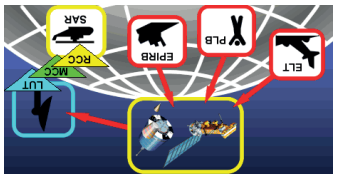
1. ABOUT YOUR PLB3

1.1 COSPAS/SARSAT System

The basic Cospas-Sarsat concept is illustrated in the adjacent figure. The System is composed of:

- distress radio beacons (ELTs for aviation use, EPIRBs for maritime use, and PLBs for personal use) which transmit signals during distress situations
- instruments on board satellites in geostationary and low-altitude Earth orbits which detect the signals transmitted by distress radio beacons
- ground receiving stations, referred to as Local Users Terminals (LUTs), which receive and process the satellite downlink signal to generate distress alerts
- Mission Control Centers (MCCs) which receive alerts produced by LUTs and forward them to Rescue Coordination Centers (RCCs), Search and Rescue Points Of Contacts (SPOCs) or other MCCs



The Cospas-Sarsat System includes two types of satellites:

- satellites in low-altitude Earth orbit (LEO) which form the LEOSAR System
- satellites in geostationary Earth orbit (GEO) which form the GEOSAR System

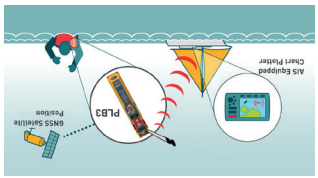
The new MEOSAR system, which is not yet fully operational, already brings significant advantages to many users in terms of better satellite coverage, faster alerts and improved detectability and is also the basis for the Return Link Service (RLS) on Galileo satellites.

1.2 Return Link Service

The Galileo Return Link Service (RLS) is a free-of-charge global service available to Cospas-Sarsat RLS compatible beacons. The RLS feature is an indication on the PLB3 that confirms to the User that the distress signal from the PLB3 has been localised by the Cospas-Sarsat system and is being sent to the SAR authorities. It does NOT mean that a search and rescue mission has been launched, but only confirms that the distress alert has been received by the Cospas-Sarsat system and is being routed to the appropriate SAR agencies. The RLS aims to send an acknowledgment to the beacon within 30 minutes following activation (the response may not be received by the beacon for significantly longer). RLS is an optional function and may not be permitted in all countries. The full RLS specification can be found here:
https://gsc-europa.eu/sites/default/files/sites/all/files/Galileo-SAR-SDD.pdf

1.3 AIS System

AIS systems operate on VHF radio bands and transceivers are fitted to all commercial shipping and an ever growing number of recreational vessels globally. Shortly after activation an AIS Man Over Board device will activate an alarm on all AIS equipped vessels within VHF range alerting them to the fact that a person is in the water needing assistance. Often it is a vessel in the close vicinity of an incident that is able to react and effect a rescue quicker than the emergency services.



Emergency service craft are fitted with AIS receivers allowing them to pinpoint a casualty in the water more precisely than any other system.

IN CASE OF EMERGENCY

Use only in situations of grave and imminent danger

MANUAL ACTIVATION

Following activation ensure the antenna is fully released and the unit has the best possible view of the sky for optimal performance.

- If the strobe light does not start flashing, manually switch the PLB3 on by pressing the ON Key
- Always turn off the PLB3 immediately after you have been rescued to avoid interference with other users.
- To turn off the beacon press and hold the TEST/OFF button until the red LED flashes twice.

LED Indications with RLS Enabled

LED	When	Transmit	GNSS	RLS
(x1)	Every 5 s		Searching	
(x3)	Once		Fix acquired	
(x5)	At transmit	406MHz	No Fix	Request sent
(x5)	At transmit	406MHz	Fix acquired	Request sent
(x8)	At transmit*	AIS	No Fix	
(x8)	At transmit*	AIS	Fix acquired	
(x1)	Every 2.5 s**	121MHz		Reply not received
(x1)	Every 2.5 s**	121MHz		Reply received
(x1)	Every 2.5 s			

LED Indications for units configured with non-RLS Protocol

LED	When	Transmit	GNSS
(x1)	Every 5 s		Searching
(x3)	Once		Fix acquired
(x5)	At transmit	406MHz	No Fix
(x5)	At transmit	406MHz	Fix acquired
(x8)	At transmit*	AIS	No Fix
(x8)	At transmit*	AIS	Fix acquired
(x1)	Every 2.5 s**	121MHz	
(x1)	Every 2.5 s**	121MHz	
(x1)	Every 2.5 s		

NOTE:
Non-RLS Protocol is usually country specific and is not a user changeable function.

* The AIS transmissions will show as 8 flashes (1 every 2 seconds) as a sequence repeated once every minute.

** The 121MHz Homer will not transmit until after the first 406MHz transmission.

2. OPERATION

WARNING: Use only in situations of grave and imminent danger. Deliberate misuse may result in a severe penalty.

Ensure that your PLB3 is always fitted with an unused battery that is within the marked expiry date. Failure to do so may result in reduced operating time when used in a real emergency. Please observe the recommendations on testing in section 3 of the User Information.

When fitted to a life jacket, to prevent accidental activation, ensure the clear cover is fitted over the grey slider as described in Section 5 of the User Manual with enough free length of the activation tape so it will not pull on the slider during normal activity of the life jacket. When carrying the PLB3 ensure the Arming Slider is in the up position.

To prevent loss always secure the PLB3 to your person or life jacket using the supplied lanyard.

Hold the PLB3 with the antenna standing vertically. Keep the area marked 'DO NOT OBSTRUCT' below the red arming slider in clear view of the sky. Covering this area will interfere with the GNSS reception and may reduce position accuracy.

2.1 Activation when installed in a life jacket

When correctly packed in a life jacket the PLB3 will activate when the life jacket inflates. Should the life jacket fail to fully inflate, it may be necessary to assist the Activation Slide by pulling on the Activation Tape to fully release the Activation Slide.

For installation details see the full User Manual:

oceansignal.com/products/plb3

2.2 Manual Activation

Only activate your PLB3 in situations requiring assistance in an emergency. Deliberate misuse of your PLB3 may result in a fine.

- **To manually activate your PLB3 in an emergency:**
  Slide the red Arming Slide down.
  Slide the grey Activation Slide to the Left or Right.

Take great care to keep well clear of eyes and face as the antenna will be released very quickly. Keep at least 30cm (12") clear to avoid possible injury.

- **If the PLB3 fails to activate when the slide is removed, press the ON Key until the green LED (blue if RLS in enabled) illuminates for 1 second and starts flashing. Release the key.**

2.3 Optical Indications on activation

- The LED green will illuminate (blue if RLS in enabled) for 1 second.
- The strobe light will start flashing.
- Within 30 seconds of activation, the indicator LED will flash indicating AIS transmission.
- Within 50 seconds of activation, the indicator LED will flash a quick burst of 5 indicating 406MHz transmission.

2.4 Deactivation

To deactivate your PLB3 after use or if it is accidentally activated, press the TEST/OFF Key until the red LED flashes twice, then release.

3. TESTING

Routine testing of your PLB3 once a month is highly recommended to ensure it is in good working order. Follow the notes below on the frequency that tests should be carried out. Remember that each test will reduce the battery capacity and reduce the operation time of your PLB3 during an emergency.

When carrying out any test the antenna should be extended.
If the PLB3 activates during the removal of the antenna retainer, press and hold the TEST/OFF button until the LED flashes red twice to deactivate.
See section 2.6 of the user manual for antenna rewind instructions.

Should a test fail it is advised to repeat the test to confirm failure before returning the PLB3 to Ocean Signal or an approved service agent.

3.1 Functional test

To test your PLB3 is functioning correctly, press and hold the TEST/OFF Key. The LED will illuminate red to indicate the key has been pressed, then start flashing. Release the TEST Key now. After a short pause the strobe will flash and the indicator LED will produce a flash sequence.

The flash sequence indicates the total number of hours that the battery has already been in use, up to the time that the test was initiated.

3.1.1 LED Indications with RLS Enabled

No. of Flashes	Functional Test Pass	Fail
1	0 to 59min 1hr to 1hr 59min	121.5MHz homer
2	2hrs to 3hrs 59min	406MHz power
3	4hrs to 5hrs 59min	AIS signal
4	6hrs to 7hrs 59min	AIS Power
5	8hrs to 9hrs 59min	Battery failure
6	10hrs +	No GNSS

3.1.2 LED Indications for units configured with non-RLS Protocol

No. of Flashes	Functional Test Pass	Fail
1	0 to 59min 1hr to 1hr 59min	121.5MHz homer
2	2hrs to 3hrs 59min	406MHz power
3	4hrs to 5hrs 59min	AIS signal
4	6hrs to 7hrs 59min	AIS Power
5	8hrs to 9hrs 59min	Battery failure
6	10hrs +	No GNSS

Because this test transmits a short burst on the aircraft distress frequency of 121.5MHz, please only carry out this test in the first 5 minutes of each hour.
The battery must be replaced either prior to the expiry date shown on the rear label or after the PLB3 has been activated.
If, during a self test, the LED flashes magenta or amber the PLB3 may not have sufficient energy to operate for the specified 24-hour period. Battery replacement is recommended.

3.2 GNSS Test

This test should only be performed where the PLB3 has a clear and unobstructed view of the sky. This is required to allow the GNSS receiver to acquire a signal from sufficient satellites to allow it to determine a position. Ensure the area marked "GNSS 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. Release the TEST Key when the LED is steady.

During the GNSS test the LED will repeat a short green flash until either a position fix is obtained or the GNSS test fails.

A successful test will be indicated by long red followed by a number of green LED flashes and an unsuccessful test will be indicated by a number of red LED flashes. The number of flashes indicates the number of GNSS tests remaining (e.g. 7 flashes = 7 tests remaining).

The test result flashes will be repeated after 2 seconds.

If there are 10 or more tests remaining then the LED will flash 10 times only (repeated).

The PLB3 has the capacity to carry out 60 GNSS tests within the lifetime of the battery.

If there are no tests remaining immediately after the current test, the LED will flash green or red rapidly for three seconds (not repeated) depending on whether the GNSS test was successful or not, respectively.

When there are no tests remaining, the LED will flash red rapidly for three seconds (not repeated). The test can be ended at any time by holding the TEST key for three seconds.

3.3 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 3.1 Functional Test:	monthly
Section 3.2 GNSS Test:	6 monthly
Required:	
Section 3.1 Functional Test:	Annually
Section 3.2 GNSS Test:	Annually

For further information regarding Self Test and Self Test history use the Ocean Signal App. to connect to your PLB3 using Near Field Communication (NFC). GET THE MOBILE APP.:

Android iOS

4. APPROVALS

For approval documents see: https://oceansignal.com/approvals-documents/

4.1 USA
Pending

4.2 Canada
Pending

4.3 European Declaration of Conformity

Ocean Signal Ltd. declares the radio equipment type PLB3 is in compliance with Dir. 2014/53/EU.

4.4 UK
Pending

4.5 Australia / New Zealand
Pending

4.6 Specifications

406MHz Transmitter

Transmit Power	5W Typical
Frequency	406.031 MHz ±1KHz
Modulation	Phase ±1.1 Radians (16K0G1D)
Encoding	Biphase L
Rate	400 bps

AIS Transmitter

Transmit Power (EIRP)	1Watt ±3dB
Frequency	161.975/162.025MHz ±500Hz
Baud rate	9600baud
Synchronisation	UTC
Messages	Message 1 (Position), Message 14 (Status)
Repetition interval	8 messages/minute Message 14 sent twice every 4 minutes

121.5MHz Transmitter

Transmit Power (PERP)	25-100mW
Frequency	121.5 MHz
Modulation	Swept Tone AM (3K20A3X)
Modulation Factor	0.85-1.0
Modulation Duty Cycle	>35%
Frequency Stability	±50ppm
Duty Cycle	98%

Visible Light Strobe

Light Type	High Intensity LED
Light Colour	White
Intensity	>1 candela
Flash Rate	20-30 per minute

Infra Red Strobe

Light Type	IR LED
Light Colour	850nm
Intensity	7.5mW/sr
Flash Rate	20-30 per minute

Battery

Type	Lithium/Iron Disulfide (Li/FeS2)
Operating lifetime	>24hours @ -20°C (-4°F)
Lithium Metal Weight (for air transport)	<2g per battery
Replacement Interval	6 years from date of manufacture or 5 years from being placed into service

GNSS Receiver

Satellite Channels	72 acquisition
Sensitivity	-167dBm
Cold Start Re-acquisition	-148dBm
GPS Antenna	Microstrip Patch

Environmental

Temperature range (operational)	Class 2 -20°C (-4°F) to +55°C (+131°F)
Temperature range (storage)	Class 2 -30°C (-22°F) to+70°C (+158°F)
Damp Heat (humidity)	40°C (104°F) at 93%
Drop (hard surface)	1m : 6 sides)
Water immersion	>10m (1.0bar) : >60minutes
Thermal Shock	45° into 100mm of water : >1hour

General

Category (Ref RTCM 11010)	2
Class (Ref RTCM 11010)	2
Group (Ref RTCM 11010)	3
Size (Length / Width / Depth)	200mm (7.87") / 36mm (1.41") / 22mm (0.86")
Weight	190g (0.42lbs)