ocean SIGNAL

User Manual

rescueME **MOB2** **Class M**

Maritime Survivor Locating Device
(incorporating AIS and DSC)

English

www.oceansignal.com

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⚠ IN CASE OF EMERGENCY ⚠
Use only in situations of grave or imminent danger

⚠ **Only activate your MOB2 in emergency situations requiring assistance. Deliberate misuse of your MOB2 may result in a fine.**

If the MOB2 is correctly fitted to the life jacket, then it will automatically activate when the life jacket inflates. This guide shows how to manually activate the MOB2.

- Slide the red Arming Tab down

- Slide the grey Activation Slide sideways to remove it. This will release the antenna and activate the MOB2

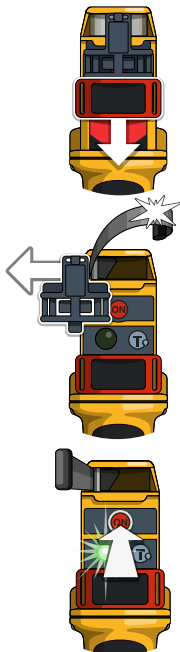⚠ **The antenna will automatically deploy. Keep the MOB2 well away from your eyes when activating.**

- If the strobe light does not start flashing, manually activate the MOB2 by pressing the ON Key .

- Always turn off the MOB2 immediately after you have been rescued to avoid interference with other users.

⚠ **To deactivate the MOB2, press and hold the TEST/OFF Key 🅣 until the red ⬤ LED flashes twice, then release.**

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1. GENERAL

1.1 Exposure to RF Electromagnetic Energy

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

This product has been evaluated for compliance with the FCC RF exposure limits given in CFR 47 part 2.1093: Portable Device.

1.2 Warnings

⚠ **This equipment is intended for emergency use only and it should not be used for routine tracking of persons or property, including routine tracking of divers.**

⚠ **If testing is performed more frequently than advised in this manual, then battery life may be reduced.**

⚠ **This radio device is designed to only provide an effective alerting and locating capability in close proximity to a vessel. This radio device is NOT a COSPAS SARSAT EPIRB or PLB.**

1.3 MOB2 Box Contents

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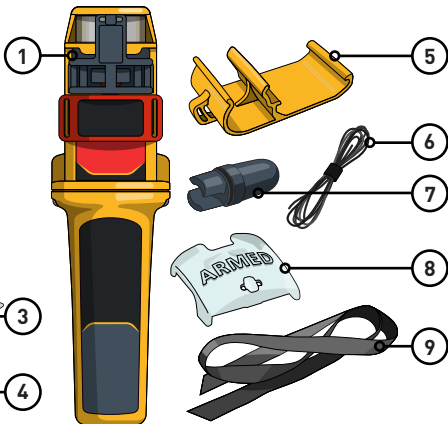
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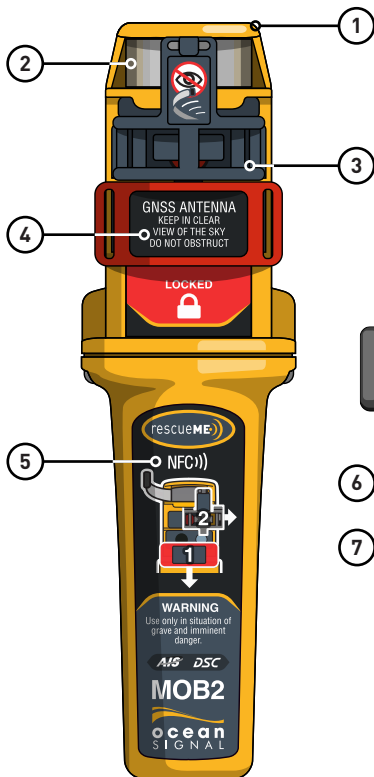
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5	NFC Antenna
6	ON Key
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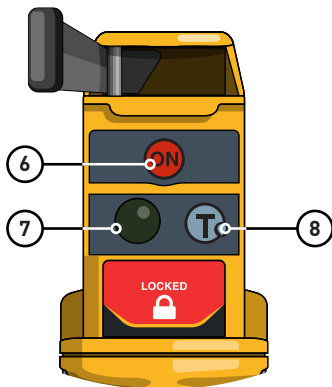
3.   INTRODUCTION

The rescueME range of products provides the user with the latest technology specifically designed for compact size and ease of operation. In the event that you fall overboard, the MOB2 is intended to alert your vessel, and other vessels in range, using real-time location tracking via AIS (Automatic Identification System) and seamless integration of Class M DSC (Digital Selective Calling).

3.1   AIS System

The AIS system operates on the VHF band. Transceivers are fitted to all commercial ships and an ever-growing number of recreational vessels globally. Shortly after activation an AIS location device, such as the MOB2, will activate a MOB target and message on plotters in all AIS equipped vessels within the VHF range alerting them that emergency assistance is required. 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 emergencies in the water more precisely than any other system.

The method in which an AIS message is displayed will depend on the reception equipment being used. AIS enabled plotters will display a ship or Man Overboard target with the MOB2 preprogrammed AIS unique ID, that identifies it as a Man Overboard device.

Interface diagram showing typical usage

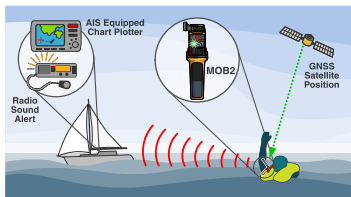## 3.2   Near Field Communication (NFC)

The MOB2 is capable of connection to devices using near field communication (NFC). NFC technology allows communication between two electronic devices over a distance of a few centimetres.

The benefit of using NFC in the MOB2 is that the power used for communication comes from the mobile device and not the MOB2. The Ocean Signal mobile app allows a user to access the MOB2 for viewing the latest test results and battery health, as well as providing a means to configure the MOB2 with a vessel MMSI, see section 3.3.

Download the app here: Android: iOS:

To use the app simply align your mobile device NFC antenna to the front of the MOB2 where you see "NFC". Once connected, details about your MOB2 will be displayed on your mobile device including the product name and serial number, the unique AIS ID and any previous test results that have been stored.

The battery information is also available through the app, including the current battery expiry date and how long the battery has been in use so far.

3.3   Digital Selective Calling (DSC)

DSC Closed Loop refers to the transmission of an addressed message to a closed user group, specifically the vessel's MMSI that you have programmed into your MOB2 as described above. The distress alert from the MOB is sent only to your vessel's DSC VHF radio, also known as the mothership.

DSC Open Loop refers to an "all-ships" call that alerts all ships with a DSC VHF radio within range.

Your MOB2 is supplied with open loop DSC enabled. In the event of a man-overboard emergency situation, the MOB2 will continue to transmit the AIS distress messages as well as a GMDSS DSC distress alert that is sent to all ships and stations within range that have a DSC VHF Radio. This distress alert will contain the current GNSS position of the victim in the water (once a GNSS fix is obtained) and is sent via VHF channel 70, maximising the chances of rescue from a nearby vessel in the event that your own ship is unable to assist.

The originating MMSI displayed on the DSC receiving radio will be the unique self-identification number pre-programmed into the MOB2 which cannot be changed. This number will always start with '972' irrespective of the country it was purchased in and will allow the DSC receiver to immediately identify a man-overboard situation requiring immediate assistance.

3.3.1   Programming MMSI numbers.

If your own vessel has a DSC enabled VHF radio, it is strongly recommended to programme your vessel's MMSI number into your MOB2 for testing purposes only. This is achieved using NFC and the Ocean Signal Mobile App, see section 3.2 for download links. Once the app is downloaded, follow the on-screen instructions to add your vessel MMSI to the MOB2.

A group MMSI can also be added if desired. This is an additional unique 9-digit MMSI number, assigned by the radio authorities to identify a group of vessels and will start with a zero (0).

3.3.2   Enabling DSC Closed Loop Functionality.

Once your vessel's MMSI number has been programmed into the MOB2 via the app, the DSC operational mode can be switched to closed loop. In this mode the MOB2 will <u>only</u> transmit a DSC distress alert to your own vessel's MMSI for the first twelve minutes of activation. It will <u>not</u> immediately transmit to all ships and stations within range.

> ⚠ **If a group MMSI is programmed into your MOB2, the MOB2 will transmit DSC distress alerts to this number instead of your individual vessel MMSI number during closed loop operation.**

If the DSC transmission from the MOB2 is not acknowledged within the first twelve minutes, the MOB2 will then revert to open loop DSC and will begin to transmit to all ships within range.

It is recommended not to switch to a closed loop function unless your personal circumstances dictates it to be necessary. Ensure that your VHF radio will acknowledge a closed loop DSC alert before switching to this functionality.

3.3.3   Manual DSC All Ships Distress Alert

Whilst the MOB2 is active, an Open Loop 'All Ships' DSC distress alert can be manually initiated by pressing and holding the ON ⏻ key for 2 seconds, then release. After a few seconds, the MOB2 will transmit a DSC distress alert to all ships with a DSC VHF radio within range.

Once an open loop DSC All Ships transmission is manually initiated, the MOB2 will then continue to operate and transmit in DSC Open Loop mode.

3.3.4   DSC Acknowledgement

Once activated, a DSC distress alert will only be terminated if the MOB2 is deactivated or if an acknowledgement is received from a Class A DSC radio or Coast Station. Non-commercial Class D DSC radios are not able to transmit an All-Ships DSC acknowledgement.

The International Maritime Organisation sets out the procedure for responding to DSC distress alerts in their document COMSAR/Circ.25.

3.3.5   DSC Self-Cancellation

When active, the MOB2 will continue to transmit DSC distress alerts until it receives an acknowledgment. If the MOB2 is deactivated before an acknowledgement is received, the MOB2 will transmit a final self-cancellation message via DSC advising that the distress alert has been cancelled.

4.   LIFE JACKET INSTALLATION

If your rescueME MOB2 is not already pre-installed into the life jacket, please follow the instructions below carefully.

⚠️ **The following guide is a generic guide to installation of the MOB2 to a life jacket. Although the MOB2 is designed to fit most life jackets, always check with your life jacket manufacturer to ensure that there are no special fixing instructions for that model.**

⚠️ **To prevent accidental activation when fitted to a life jacket, ensure that the clear cover is fitted over the grey activation slider with enough free length of the activation tape so it will not pull on the slider during normal activity of the life jacket. When NOT fitted to life jacket, ensure that the red Arming Tab is in the up (LOCKED) position**

⚠️ **Once completed, the installation should be tested to ensure correct activation takes place. Refer to the life jacket manufacturer for the inflation process.**

The MOB2 is activated when the activation slider is pulled from the front of the device by the tension in the tape created by the inflation of the life jacket. Unless the life jacket inflates, the MOB2 will not auto-activate.

This manual provides installation instructions for life jackets with separate bladders and life jackets with stitched / welded-in bladders.

⚠️ **For life jackets with small, separate bladders that narrow significantly, close to the oral tube, the installation method for the welded-in bladder should be used. This method provides a fixing point for the activation tape that can be positioned where needed to allow for maximum movement when activated.**

For installation into a life jacket with a separate bladder, the images assume that the life jacket oral inflation tube is on the left hand side (as viewed from the front). If the tube is on the right hand side then the tape should be fitted on the opposite sides shown.

For installation into a life jacket with a bladder that is welded / stitched into the cover, the images assume that the adhesive buckle patch and MOB2 will be attached on the left side of the oral tube. See section 4.6.2 to determine optimum placement of the adhesive buckle patch. If attaching to the right of the oral tube then the tape should be fitted on the opposite sides shown.

4.1   Remove the Activation Slider

⚠️ **The MOB2 will activate when removing or re-attaching the grey slider. Ensure it is turned off immediately by pressing and holding the TEST/OFF Key 🔘 until the red 🔴 LED flashes twice, then release.**

⚠️ **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.**

•   Slide the red Arming Tab down (1).

•   Remove the grey Activation Slider (2). This will deploy the antenna and activate the unit.
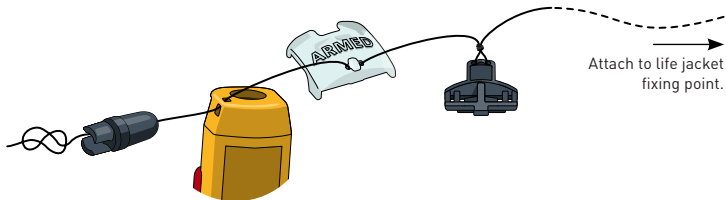
•   Deactivate the MOB2.
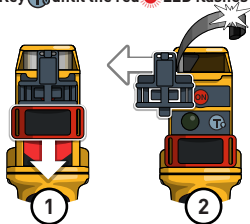
4.2   Secure the Activation System

- To prevent accidental loss, use the provided length of cord to tether the antenna rewind tool, activation slider and protective cover. Attaching these parts will prevent them falling into the water upon activation and ensure that they are available for re-use.

- Secure the grey activation slider approximately 30cm from one end of the cord as shown.

30cm (12")
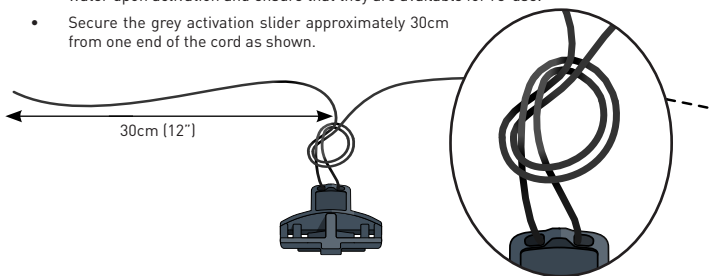
- Pass the cord through the protective 'ARMED' Cover, the MOB2 device and antenna winder.

- Tie a figure of eight knot at the end of the cord to secure the activation system as shown.

Attach to life jacket fixing point.

- To prevent accidental loss, use the remaining length of cord from the grey activation slider to tether the MOB2 to a fixed point in the life jacket. Select a secure point on the life jacket that the cord cannot detach or untie from if the MOB2 is accidentally removed from its bracket.

⚠ **Ensure that MOB2 is securely tied to a fixed point on the life jacket that will <u>NOT</u> inhibit inflation. The fixing point will be identified in the life jacket user manual.**

4.3   Attach the Activation Tape to the Activation Slider

• Pass the Activation Tape down through the inner slot in the grey Activation Slider.

• Pass the Activation Tape up through the outer slot in the grey Activation Slider.

• Pull the Activation Tape through the slider to leave approximately 2cm (1″) free at the end.

• Pass the other end of the Activation Tape across the underside of the Activation Slider and pull tight to trap the tape to the slider.
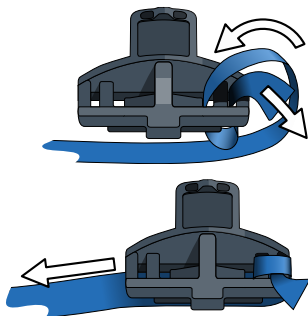
4.4   Insert the Activation Slider into the MOB2

⚠ **The MOB2 will turn on during this process. Ensure it is turned off as soon as the grey Activation Slider is in place. Deactivate the MOB2 by pressing and holding the TEST/OFF Key until the red LED flashes twice, then release.**

• Place the antenna end cap into the recess.

• Pass the antenna winder through the hole in the top of the MOB2 and place over the antenna end cap.

• Rotate the winder anti-clockwise until the antenna is flush with the MOB2 fully wound. Do not remove the tool until the slider is in place.

• Push the grey activation slider into place ensuring the tape lies flat between the slider and the MOB2. This will activate the unit.

• Deactivate the MOB2.

• Remove the Antenna Winder to allow the antenna to rest behind the grey Activation Slider.

• Slide the red Arming Tab upwards to lock the Antenna Slider into place.
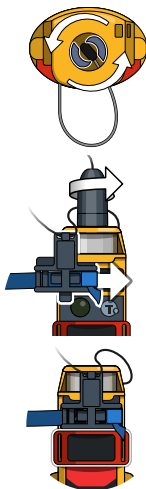
4.5   Attach the Oral Tube Bracket to the life jacket

- Place the Oral Tube Bracket as low down the oral tube as possible.

To activate the MOB2, the activation tape must be wrapped around a substantial part of the life jacket bladder. Many modern life jackets taper towards the neck for comfort and support in the water and correct installation of the MOB2 must ensure that the tape is around the larger part of the bladder rather than a tapered section where expansion may not be sufficient.

Fitting the Oral Tube Bracket as low down on the oral tube as possible will usually assist in ensuring that the tape is passed around the largest bladder section available.

- If there are whistles and lights fastened to the oral tube, then place them above the MOB2 bracket or attach them elsewhere to the life jacket.
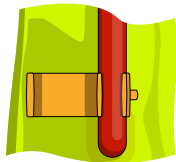
4.6   Attach the MOB2

4.6.1   Fitting to life jacket with separate bladder
(For attachment instruction to a fixed bladder, or a small and narrow separate bladder, see section 4.6.2)

- Fold the bladder behind the oral tube in accordance with the life jacket manufacturer's instructions.

- Rest the MOB2 on the Oral Tube Bracket and pass the free end of the tape around the back of the life jacket bladder taking care not to twist the tape.

- Feed the tape up through the innermost slot on the side of the Oral Tube Bracket. Loop the emerging tape over the attachment point and feed back up through the outermost slot.

- Feed the tape back down through the innermost slot so that it emerges at the same point where it originally entered.

- Clip the MOB2 into the Oral Tube Bracket taking care not to trap any loose tape.
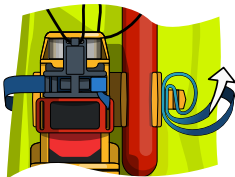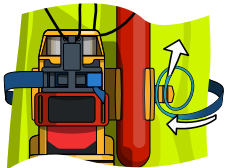
- Pull the free end of the tape so that the bladder is able to inflate and remains folded in accordance with the life jacket manufacturer's instructions.

- **Do not over-tighten the tape**. Test for tightness by ensuring you can freely insert a finger between the tape and the bladder.

- The tape should not impinge on the bladder, but be tight enough so that any unfolding of the bladder causes the activation of the MOB2.

- Continue to section **4.7: Arm the MOB2 Device**
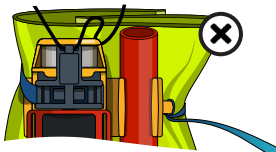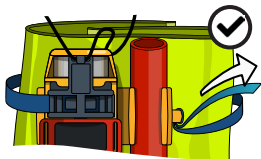
### 4.6.2   Fitting to Life jacket with bladder stitched/welded into cover

This installation method is suitable for life jackets with a bladder that is welded / stitched into the cover, and for life jackets with a small, separate bladder that narrows significantly, close to the oral tube.

When using this method, the fixing buckle and patch should be adhered to the widest part of the bladder so that it is as far away from the MOB2 as possible, whilst remaining in-line with the slider but not passing over the oral tube. For small, separate bladders, this can be positioned on the rear of the bladder if suitable.

⚠ **The MOB2 should always be situated between the oral tube and fixing patch**

- Clip the MOB2 into the Oral Tube Bracket taking care not to trap any loose tape.

- Remove the backing from the adhesive buckle patch.

- Attach the fixing buckle to the adhesive buckle patch. Ensure that the two ears of the 'T' are positioned on the side of the patch without the adhesive. This will ensure that when the buckle is tensioned it cannot be pulled through the adhesive patch.

- Fold or manipulate the bladder to find a suitable area for the adhesive buckle patch to be positioned. Ensure that it is positioned in-line with the activation slider and as far away from the MOB2 as possible.

- Adhere the fixing buckle patch assembly to the bladder, pressing down firmly to set the adhesive.
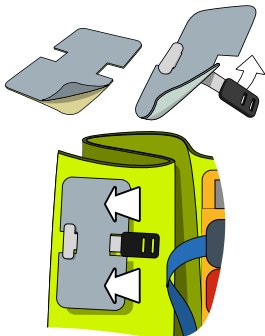
- Feed the free end of the tape up through the innermost slot on the fixing buckle. Loop the emerging tape over the attachment end and feed back up through the outermost slot.
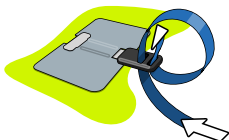
- Feed the tape back down through the innermost slot so that emerges at the same point where it originally entered.
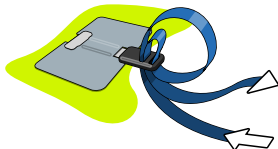
- Whilst folding the bladder behind the oral tube in accordance with the life jacket manufacturer's instructions, pull the free end of the tape to shorten the length between the M0B2 and the fixing buckle.

⚠ **Shortening the tape will ensure that as the bladder inflates and the buckle patch moves away from the M0B2, the slider will be pulled from the M0B2 as it does so, resulting in its activation.**

4.7   Arm the M0B2 device

- Once the M0B2 is fully attached to the life jacket it is ready to be armed. Slide the red Arming Tab down.

- A Protective "ARMED" Cover is provided to protect the M0B2 from accidental activation if the grey slider is knocked or otherwise moved under the life jacket cover. After arming the M0B2, fit the Protective "ARMED" Cover into the slots immediately adjacent to the arming slider. Make sure that both sides of the cover are clipped in place.

- Close the life jacket outer in accordance with the manufacturer's instructions, ensuring that nothing is trapped in the enclosure.
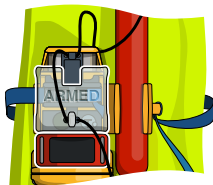
⚠ **Failure to arm the M0B2 will inhibit the semi-automatic activation of the M0B2 when needed and may restrict life jacket inflation.**

⚠ **Ensure that the M0B2 is securely tied to a fixed point on the life jacket that will NOT inhibit inflation.**

5. OPERATION

⚠️ **Only use in situations of grave and imminent danger. Misuse may result in a severe penalty.** ⚠️

Ensure that your MOB2 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 6.

⚠️ **To prevent accidental activation when installed in a life jacket, ensure that the clear protective 'ARMED' cover is fitted over the grey slider as described in section 4, with enough free length of tape so it will not pull on the slider during the normal activity of the life jacket. When carrying the MOB2 please ensure that the Red Arming tab is always pushed up and locked into place.**

5.1 Semi-Automatic Activation

When correctly packed in a life jacket the MOB2 will automatically activate when the life jacket inflates. Should the jacket fail to fully inflate, it may be necessary to assist the grey activation slider by pulling on the tape to fully release it.

5.2 Manual Activation

⚠️ **KEEP THE MOB2 FAR AWAY FROM EYES WHEN ACTIVATING. The antenna will be automatically released.**

- To manually activate your MOB2 in an emergency, push the red arming tab down, and slide the grey activation slider to the left or right to remove it.

- The strobe and infra-red light will start flashing. The MOB2 will automatically start transmitting after approximately 15 seconds. Please note that infra-red light is not visible by sight.

- If the MOB2 fails to activate when the slide is removed, press the ON key 🔴 down until the green 🟢 LED starts flashing. Release the ON key.

- Upon activation, the indicator LED will show two (2) flashes during an AIS transmission and four (4) flashes during a DSC transmission (see section 5.2.1 for full details of the flash sequences that can be seen during activation of the MOB2).

  NOTE: if the MOB2 has been switched to closed loop DSC functionality, this will change from four flashes during a DSC transmission to one long flash during a DSC transmission for the first 12 minutes of activation.

- When operating the MOB2, tether the device to your body or life jacket to avoid accidental loss.

- Hold your device with the antenna standing vertically. Keep the area marked 'DO NOT OBSTRUCT' on the red arming tab free and clear whilst in use. Obstruction or covering of this area may interfere with GNSS reception.

5.2.1   LED Indications on Activation

TYPE	LED SEQUENCE		STATUS	WHEN
Visual Aid to Location		1x strobe & infra-red* flash	These flashes will aid Search and Rescue to pin-point your precise location when in range.	Once every 2.5 seconds >10% battery
Visual Aid & Low Battery Warning		1x amber, strobe & infra-red* flash	An amber flash will precede the strobe and infra-red flash every 2.5s when the MOB2 has less than 10% battery remaining.	Once every 2.5 seconds <10% battery
Receiver Status Indicator		3x amber flashes (receiver in standby mode)	Three amber flashes indicate the DSC receiver is in standby mode while DSC transmissions are being sent.	Once every 5 seconds
		3x green flashes (receiver waiting for DSC ack.)	Three green flashes indicate the DSC receiver is on and awaiting a DSC acknowledgment while DSC transmissions are being sent.	
		3x blue flashes (DSC ack. has been received)	Three blue flashes indicate a DSC acknowledgement has been received. No further DSC transmissions will be sent.	
GNSS Search/Fix		1x cyan flash	A cyan flash will occur every 5 seconds whilst the MOB2 is searching for a GNSS location fix.	Once every 5 seconds
		3x cyan flashes	Three cyan flashes will occur when a new or updated GNSS location has been obtained.	Once at GNSS Fix
AIS Transmit		2x green flashes	Two green flashes will occur during each AIS transmission that includes a GNSS location fix	8 times every minute
		2x red flashes	Two red flashes will occur during each AIS transmission that does not include a GNSS location fix.	
DSC Transmit Open Loop		4x green flashes	Four green flashes will occur during a DSC open loop transmission (to all ships) that includes a GNSS location fix.	Once every 5 minutes for first 2 hours then once every 10 minutes**
		4x red flashes	Four red flashes will occur during a DSC open loop transmission (to all ships) that does not include a GNSS location fix.	
DSC Transmit Closed Loop		1x long green flash	One long green flash will occur during a DSC closed loop transmission (to own vessel only) that includes a GNSS location fix.	Once every 5 minutes for first 12 minutes then reverts to Open Loop***
		1x long red flash	One long red flash will occur during a DSC closed loop transmission (to own vessel only) that does not include a GNSS location fix.	

*Infra-red light is not visible by sight.
**DSC transmissions will continue until a DSC acknowledgement is received, the unit is deactivated or the battery is depleted.
***Closed Loop DSC transmissions will automatically revert to Open Loop DSC transmissions after 12 minutes if no DSC acknowledgment is received from own vessel (the manually programmed MMSI number - see section 3.3).

5.3   Deactivation

To manually deactivate your MOB2 after use or if it is accidentally activated, press and hold the TEST/OFF 🔵 Key until the red 🔴 LED flashes twice, then release.

5.4   Rewinding the antenna

- •   Use the small grey Antenna Rewind tool supplied with the MOB2.

- •   Bend the MOB2 antenna so that the end can be viewed through the circular opening from above the MOB2.

- •   Slot the Antenna rewind tool into the circular opening so that the antenna end is locked into the rewind tool.

- •   Rotate the tool anti-clockwise until the antenna is fully wound.

- •   Whilst holding the antenna in place with the tool, replace the grey activation slider and then remove the tool.

⚠️ **If the MOB2 has activated when replacing the grey slider, then deactivate immediately by pressing and holding the TEST/OFF 🔵 Key until the red 🔴 LED flashes twice, then release.**

⚠️ **Rotating the antenna rewind tool in the clockwise direction may result in damage to the antenna.**

5.5   False Alerts

If the MOB2 has accidentally activated, it should be immediately turned off and the nearest Coast Guard Centre or Rescue Coordination Centre should be contacted to explain that the MOB2 Man Overboard device has been activated in error and there are no follow up rescue actions required. If appropriate, make a call on a VHF radio to announce the same information.

5.6   MOB Message Reception

MOB AIS message display will depend on the reception equipment being used. AIS enabled plotters will either display a ship or AIS Man Overboard target with the MOB2 unique self ID. The DSC radio will display a DSC alert with the MOB2 unique self ID.

6.   TESTING

Routine testing of your MOB2 is recommended to ensure it is in good working order. Please follow the guidance on the frequency that tests should be carried out. Each test will reduce the battery capacity slightly and reduce the operation time of your MOB2 during an emergency.

The MOB2 will automatically shut down at the end of each test, indicated by the red 🔴 LED flashing twice.

6.1   Functional and DSC Test

⚠️ **This test should be carried out once a month throughout the lifetime of an installed battery.**

⚠️ **An MMSI number must be programmed into the MOB2 before commencing this test and the target radio must be within range.**

To test your MOB2 is functioning correctly, press and hold the TEST/OFF 🔵 Key. After one second the red 🔴 LED will start to flash indicating that the Functional and DSC Test Mode is activated. The key may now be released.

After the TEST/OFF key is released a DSC test transmission will be sent to the MMSI number programmed into your MOB2 - see section 3.3. This test DSC transmission will be indicated by a long red flash and then followed by three green flashes every two seconds until an acknowledgement is received from the target radio.

At the end of the test, the strobe will flash and the indicator LED will produce a flash sequence. This flash sequence indicates the pass/fail result. The following table provides full details of the possible flash sequences and their meaning.

6.1.1   LED indicator table colour key.

LED COLOUR		LED COLOUR	
🟩	GREEN	🟪	MAGENTA
🟥	RED	▯	STROBE
🟧	AMBER	▯	INFRA-RED (**NOTE**: Infra-red light is not visible by sight)
🟦	BLUE		

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6.1.2   LED indications on DSC test

LED SEQUENCE

RESULT

GREEN

DSC Transmission success.

No DSC Acknowledgement received.

Battery full.

AMBER

DSC Transmission success.

No DSC Acknowledgement received.

Battery used for over 1hr and requires replacement.

BLUE

DSC Transmission success.

DSC Acknowledgement received.

Battery full.

MAGENTA

DSC Transmission success.

DSC Acknowledgement received.

Battery used for over 1hr and requires replacement.

TEST IN PROGRESS — RESULT

5x infra-red*

30s Max.** Awaiting DSC acknowledgement

1.5s

DSC tx

DSC ack. received

LED SEQUENCE

RESULT

RED

DSC transmission sent. No DSC acknowledgement received.

Test Failure. View test result data using NFC and Mobile App.

RED

DSC transmission sent and acknowledgement received.

Test Failure. View test result data using NFC and Mobile App.

RED

No MMSI configured.

Test cannot be completed.

*LED sequence diagram labels: DSC tx, TEST IN PROGRESS, 1.5s, 30s Max.**, Awaiting DSC acknowledgement, RESULT, 5x infra-red*; DSC tx, TEST IN PROGRESS, 1.5s, 30s Max.**, Awaiting DSC ack., DSC ack. received, RESULT, 5x infra-red*; TEST, No DSC transmission, RESULT*

* Infra-red light is not visible by sight.

**The duration between DSC transmission and DSC acknowledgement is determined by the response time from the DSC VHF radio and not the M0B2.

In the event of a test failure, contact Ocean Signal Ltd for advice at help@oceansignal.com.

Battery replacement must be carried out at an Ocean Signal authorised battery replacement centre. Visit www.oceansignal.com for a list of authorised centres.

6.2 AIS and GNSS Test

⚠️ **This test should be carried out no more than once a year throughout the lifetime of an installed battery.**

To initiate an AIS transmission and GNSS test, press and hold the TEST/OFF 🔘 Key. After one second the red 🔴 LED will start to flash. After a short while (approx. 5 seconds), the red 🔴 LED will remain on and steady, indicating that the AIS and GNSS Test Mode is activated. The key can now be released.

⚠️ **The M0B2 is limited to 10x AIS and GNSS tests over the lifetime of the installed battery. In the event that all tests have been previously used and there are none available, the red LED will flash repeatedly upon release of the Test key, then shut down.**

Contact Ocean Signal for advice at help@oceansignal.com

After the TEST/OFF key is released the LED will produce a cyan 🔵 flash every five seconds whilst the M0B2 is searching for a GNSS location fix.

Once a GNSS location fix is obtained, the strobe will flash and the indicator LED will produce a flash sequence. This flash sequence indicates the pass/fail result.

In the event of a test failure, repeat the test. If the test failure reoccurs, contact Ocean Signal Ltd for advice at help@oceansignal.com.
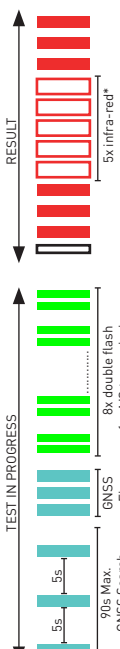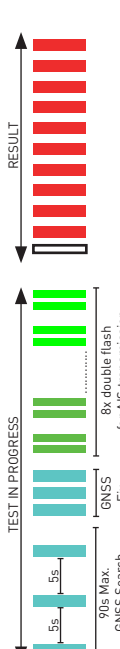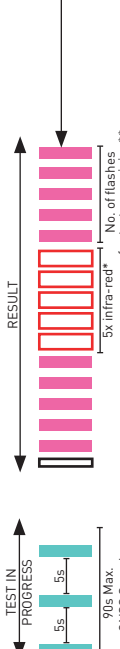
Batteries should be replaced at an authorised battery replacement or service centre.
See www.oceansignal.com for details.

6.2.1 LED Indicator Table Key

LED COLOUR		LED COLOUR	
🟩	GREEN	🟪	MAGENTA
🟥	RED	⬜	STROBE
🟨	AMBER	⬜	INFRA-RED
🟦	CYAN		(**NOTE**: Infra-red light is not visible by sight.)

6.2.2 LED indications on GNSS and AIS test.

LED SEQUENCE / **RESULT**

Column 1:
TEST IN PROGRESS
5s / 5s / 5s
90s Max. GNSS Search
GNSS Fix
8x double flash for AIS transmission
RESULT
5x infra-red*
No. of flashes for tests remaining**

GREEN
Test Successful. Battery Full.
*No. of flashes as no. of tests remaining decreases.

Column 2:
TEST IN PROGRESS
5s / 5s / 5s
90s Max. GNSS Search
GNSS Fix
8x double flash for AIS transmission
RESULT
5x infra-red*
No. of flashes for tests remaining**

AMBER
Test Successful. Battery used for over 1hr and requires replacement.
*No. of flashes as no. of tests remaining decreases.

Column 3:
TEST IN PROGRESS
5s / 5s / 5s
90s Max. GNSS Search
GNSS Fix
8x double flash for AIS transmission
RESULT

GREEN
Test Successful. Battery Full.
This was the last available test. No further tests remaining.

Column 4:
TEST IN PROGRESS
5s / 5s / 5s
90s Max. GNSS Search
GNSS Fix
8x double flash for AIS transmission
RESULT

AMBER
Test Successful. Battery used for over 1hr and requires replacement.
This was the last available test. No further tests remaining.

LED SEQUENCE

RESULT

Row 1 — RED

LED SEQUENCE:

5s / 5s / 90s Max. GNSS Search — TEST IN PROGRESS

GNSS Fix

8x double flash for AIS transmission

RESULT — 5x infra-red*

RESULT:

RED

Test failure. View test result data using NFC and Mobile App.

Row 2 — RED

LED SEQUENCE:

5s / 5s / 90s Max. GNSS Search — TEST IN PROGRESS

GNSS Fix

8x double flash for AIS transmission

RESULT

RESULT:

RED

Test failure. View test result data using NFC and Mobile App.

This was the last available test. No further tests remaining.

Row 3 — MAGENTA

LED SEQUENCE:

5s / 5s / 90s Max. GNSS Search — TEST IN PROGRESS

RESULT — 5x infra-red*

No. of flashes for tests remaining**

RESULT:

MAGENTA

Test failure - No GNSS fix

*No. of flashes reduces as no. of tests remaining decreases.

Row 4 — MAGENTA

LED SEQUENCE:

5s / 5s / 90s Max. GNSS Search — TEST IN PROGRESS

RESULT

RESULT:

MAGENTA

Test failure - No GNSS fix

This was the last available test. No further tests remaining.

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* Infra-red light is not visible by sight.

** No. of flashes indicates how many tests are remaining.

5 flashes = 5 (or more) tests remaining, 4 flashes = 4 tests remaining, 3 flashes = 3 tests remaining, and so on.

7.   APPENDIX

7.1   Maintenance and Troubleshooting

Your MOB2 should not need servicing during its lifetime, with the exception of changing the battery before the marked expiry date. Battery replacement must be carried out at an Ocean Signal authorised battery replacement centre.

Regular cleaning, inspection and testing are advised. Clean any grime or salt residue from the unit with a weak solution of detergent in warm water. Never use solvents as this may affect the structural integrity of the plastics used. Rinse well with fresh water after cleaning and dry thoroughly.

Inspect the units for signs of case damage or cracks, check the labels are intact and the battery is within the expiry date. Ensure the antenna is free to extend and in good condition.

Check for correct MOB2 operation using the available Test modes (section 6). If the unit appears to fail testing, contact a service representative at Ocean Signal Ltd. See www.oceansignal.com for full contact details.

7.2   Batteries

The MOB2 uses a lithium manganese dioxide battery pack to power the device. These batteries have a five year storage life before any significant reduction in capacity. Each MOB2 product is marked with a battery expiry date, located on the base of the unit.

The battery must be replaced either prior to the expiry date or after the MOB2 has been used, even if only activated for a short period of time. Battery replacement must be carried out at an Ocean Signal authorised battery replacement centre.

⚠ **The battery should be replaced before the expiry date has passed to ensure reliable operation and full capacity in emergency situations.**

⚠ **Always use an Ocean Signal authorised battery replacement centre when a battery change is required. Failure to do so will invalidate type approval and warranty and may also mean that the unit does not operate correctly in a distress situation.**

⚠ **Never dispose of the MOB2 or its batteries in a fire.**

⚠ **Never attempt to remove, puncture or dismantle the battery.**

⚠ **Never attempt to charge the battery.**

⚠ **Extreme temperature caused by failure to observe the above warnings may cause the battery to explode or catch fire, which can result in injury or damage to surrounding personnel or property.**

⚠ **Dispose of used products and its included batteries in a responsible manner, national and local regulations on battery disposal may apply including restricting the disposal of the batteries within this product in domestic refuse.**

7.3   Battery Safety Information

Manufacturer name: LB9M
Volts: 6.0V nominal
Approximate weight: 34g
Chemical System: $LiMnO_2$
Lithium weight/cell: 0.55g
Total Lithium weight/battery: 1.1g
Rechargeable: No

For information regarding the physical and chemical properties, the potential health and safety measures and the environmental effects of the battery used with this product, refer to the Product Safety Data Sheet which can be downloaded directly from the product page on the Ocean Signal website, www.oceansignal.com.

7.4   Handling and Storage

This product should be stored in a cool and well ventilated area. Elevated temperatures can result in a reduction of battery life.

Avoid accidentally short-circuiting batteries. Prolonged short-circuiting can cause the battery temperature to rise and significantly reduce battery life.

7.5   Transportation

The (LB9M) battery module has been tested in accordance with subsection 38.3 of part III of the UN Manual of Tests and Criteria. Test reports are available from Ocean Signal on request.

The M0B2 Man Overboard device should be transported by air in accordance with the IATA dangerous goods regulations: class 9, UN3091, proper name "Lithium metal batteries contained in equipment" and should be packed in accordance with packing instruction 970, section II.

The M0B2 Man Overboard device can be carried as personal luggage on board aircraft under the conditions of the clause 2.3.5.8. of the IATA Regulations.

7.6   Accessories

Fitting Kit for Welded/Sewn-In Bladder ....Part Number: 741S-05890
M0B2 Fittings Pack ....Part Number: 741S-05980

7.7   Specifications

AIS Transmission

Transmit Power (EIRP)	1 Watt
Frequency	161.975/162.025MHz ±500Hz
Baud Rate	9600 Baud
Synchronisation	UTC
Messages	Message 1 (position) , Message 14 (MOB Status)
Repetition Interval	8 messages /minute
	Message 14 sent twice every 4 minutes

DSC Transmission

Transmit Power (EIRP)	1 Watt
Frequency	156.525MHz
Messages	Individual Distress Relay
	All Ships Distress Alert
Message Repetition	Once every five/ten minutes
Baud Rate	1200 Baud

NFC Transmitter/Receiver

Operating Frequency	13.56MHz

Battery

Operating Lifetime	>24 hours at -20ºC
Storage Life	5 Years

Environmental

Temperature Range (operational)	-20ºC to +55ºC
Temperature Range (storage)	-30ºC to +70ºC
Damp Heat (humidity)	40ºC at 93%
Drop (hard surface)	1m: 6 sides
Designed to meet Drop (water)	20m
Waterproof	IP68, 10m depth for 1 hour
Thermal Shock	45ºC into 100mm of water > 1 hour

Physical

Weight	92 grams
Dimensions	134mm x 38mm x 27mm
Width in bracket	57mm/65mm

7.8   Licensing (US Only)

Under the rules of 47 C.F.R Part 95, licensing or registration of MSLD devices is not required. MSLDs are not authorised to be used on Land.

7.9 Approvals

7.9.1 European Declaration of Conformity

Ocean Signal Ltd. declares equipment type MOB2 is in compliance with Dir. 2014/53/EU.
www.oceansignal.com/products/rescueME-mob2/RED-DofC

The MOB2 is compliant with regulation ECC/DEC/(22)02 regarding the use of Class M MOB devices.

⚠ **The following statement is for US customers only: This device has not been authorized as required by the rules of the Federal Communications Commission. This device is not, and may not be, offered for sale or lease, or sold or leased, until authorization is obtained.**

7.10 Warranty

7.10.1 Limited Warranty

The limited warranties in the global limited warranty are exclusive and in lieu of all other warranties express or implied or statutory, including any liability arising under any warranty of merchantability or fitness for a particular purpose, statutory or otherwise. This warranty gives the owner specific legal rights, which may vary from jurisdiction to jurisdiction.

In no event shall Ocean Signal Ltd. or its affiliates be liable for any incidental, special, indirect or consequential damages, whether resulting from the use, misuse, inability to use, improper reliance on, or from any defects in the product. Some jurisdictions do not allow the exclusion on incidental or consequential damages, so the above limitation may not apply to you.

The Global Limited Warranty does not affect a customer's rights against a retailer arising from a sales/purchase contract.

Product repaired or replaced under warranty will be warranted only for the remaining balance of the applicable original warranty period.

Subject to the terms, conditions, limitations and exclusions in the Global Limited Warranty, all Ocean Signal Products are warranted to be free from defects in material or workmanship for a period of two (2) years from the date the Product was purchased by the Original Customer (the "Standard Limited Warranty Period"). During this period and for the Original Customer only, Ocean Signal will, at its sole discretion, repair or replace any components that fail in normal use, which, in the absence of any applicable law to the contrary, shall be the customer's sole and exclusive remedy for any breach of warranty.

If the Standard Limited Warranty applies to you, Ocean Signal will not charge you for parts or labour for warranty repairs or replacements. However, the cost of transporting your warranted Product to Ocean Signal for repair or replacement is your responsibility and is not covered by Ocean Signal.

7.10.2   Extended Warranty.

Apply for free at www.oceansignal.com/warranty

By entering your product details within 90 days of purchase, you can add 3 years to the warranty period.

For full details on extended warranty on this product see https://oceansignal.com/ecomm-policies/.

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