



Sometimes, the call of the wild can take us to isolated and high-risk environments – be that for adventure, or because we’ve got a job to do! We always hope and even assume that things will go smoothly – but being prepared with the right gear is essential. Let’s consider our worst-case scenario, and how we can best respond in an emergency situation.

Distress beacons, like PLBs, are a reliable way to alert the authorities – but how exactly do these devices work?

What are Satellite Messengers? Are they the same as a beacon? If not, how are they different?

In this blog, we dive into the what, where, why, and how, collating the answers to some of the most frequently asked questions. Plus, we unpack these getaway gadgets even more in [Episode 49 of the Snowys Camping Show](#).



When adventure calls, it’s best to be prepared for an emergency with either a Satellite Messenger or PLB. Image: ZOLEO

The 4 Types of Emergency Beacons:

1. **PLB** – Personal Locator Beacons. These are used by adventurers and workers in remote high-risk environments.
2. **EPIRB** – Emergency Position Indicating Radio Beacons, used in marine operations beyond two nautical miles from shore.
3. **ELT** – Emergency Locator Transmitters, used in aircraft.
4. **Satellite Messenger** – Similar to PLBs, used by adventurers but operational via an independent/private network. They also allow for messaging in non-life-threatening situations.

EPIRBs and ELTs are specific to marine and air operations respectively, designed to be installed and registered to the vessel.

[PLBs and Satellite Messengers](#) are commonly used for land-based activities and are designed to be worn on the person – used by an individual, and the primary focus of this article.



All PLBs use the global COSPAS-SARSAT network. Image: ACR

What is a PLB?

A Personal Locator Beacon is a small, pocket-sized beacon that uses satellite technology to relay a message from your location on the ground or water, to search and rescue crews. They’re designed to be used as a last resort when all other means of communication are exhausted and you are in both immediate and grave danger. When we say ‘grave’ danger, we mean a life-or-death situation. Running out of fuel or getting lost on the trail does not warrant the use of a PLB.

Nowadays, most of these devices are GPS-enabled and send out an emergency distress signal, including your GPS coordinates, to the relevant rescue authority. The distress signal sent out by a PLB is 406 MHz. This special frequency is used just for search and rescue

operations, and communicates with a network of international military satellites called COSPAS-SARSAT. This network is made up of American, Russian, Canadian, and French satellites.

When you activate your beacon, your GPS location and the unique code relevant to your beacon will be transmitted to a rescue coordination centre via satellite. The nearest rescue services will then be notified.

Older model PLBs used the 121.5 MHz frequency, however this is no longer detected by satellite and these models are no longer licensed for use. The Ocean Signal RescueMe PLB1 is an exception.



The Ocean Signal RescueMe PLB1 is the smallest PLB currently available. Image: Ocean Signal

Ocean Signal RescueMe PLB1

The Ocean Signal RescueMe PLB1 uses three methods to communicate your location:

- The 406 MHz network communicates to the satellites.
- The 121.5 MHz homing capability is used to aid search and rescue with your location.
- A high-density flashing strobe acts as a visual aid.

The RescueMe PLB1 is marketed towards kayakers, SUPers or recreational boaties. It's proven popular with these water sport enthusiasts because although they aren't suitable for marine use, they do work up to two nautical miles offshore. They also float and have a waterproof rating of 15-metres for 1-hour, so if you do happen to go overboard, your device will still operate - just be sure to have it clipped to you or your life vest!



The ACR ResQLink View PLB has a digital display and shows GPS coordinates. Image: ACR

ACR ResQLink PLB

The ACR ResQLink is not much larger than a smartphone and weighs a mere 153g - a must-have piece of reassurance for solo and group hikers, kayakers, cyclists, and climbers alike. Both the ACR ResQLink 400 PLB and ResQLink View PLB use the same three methods to communicate your location:

- The 406 MHz network communicates to the satellites
- The 121.5 MHz homing capability is used to aid search and rescue with your location
- A high-density flashing strobe acts as a visual aid

The ACR units differ from the Ocean Signal in their exterior casing, waterproof rating, and battery life. If you ever intend to reside in another country other than Australia, the ResQLink will transition - however, other PLBs need to be re-coded and battery replacements can only be done within Australia.

The difference between these two ACR models is the additional technologies included with the ResQLink View. This unit has a digital display enabling you to read your own GPS coordinates and provides visual feedback during activation. Simply put, one is straight-up

while the other is for techies!

The ACR ResQLink 400 PLB and ResQLink View PLB are popular with land-based outdoor enthusiasts - climbers, hikers, campers, cyclists, 4WDers, and lovers of action sports. They are also used in remote travel situations, be it for work or recreation.



A Satellite Messenger can be pre-programmed with messages for friends and family. Image: Spot

What is a Satellite Messenger?

Instead of the government-run COSPAS-SARSAT system, Satellite Messengers operate via private or independently run networks that own commercial satellites.

Both SPOT and ZOLEO have partnered with the private network GEOS International Emergency Response Coordination Center (IERCC). Once an SOS is activated, an alert is sent directly to GEOS IERCC who will notify the relevant authorities based on your GPS location and emergency situation.

Think of SPOT and ZOLEO like private companies that offer a more tailored service. This also means that you will have to pay some sort of plan or subscription fee.

A Satellite Messenger device provides additional communication features too, and ideal for people who want the option to say something more than just *I'm in danger, send help!*



SPOT Satellite Messengers are rugged yet compact and ideal for lightweight adventures. Image: Spot

SPOT

Along with SOS, the SPOT Gen4 allows you to communicate with your friends and family when out of range. You can pre-program custom messages that include your GPS coordinates to let them know that you're safe, or that you need assistance but are not in serious danger. You can also show your tracking waypoints on your online account, so your friends and family can monitor your progress.

The SPOT X 2-Way features the same SOS function, but includes Bluetooth capabilities. By using the SPOT X app to connect the device to your smartphone, you can exchange messages as you go instead of relying on pre-programmed texts and emails. The X 2-Way also allows you to navigate using the built-in compass and programmable waypoints.



The ZOLEO device connects using an app on your smartphone. Image: Zoleo

ZOLEO

Released onto the market early in 2020, ZOLEO's Global Satellite Communicator raises the bar on Satellite Messenger devices. This device operates off the cellular and Wi-Fi networks and offers all the traditional satellite device features such as an SOS button and GPS navigation.

However, its messaging capabilities are what truly set it apart from its competitors. ZOLEO has partnered with the Iridium satellite network to enable messages anywhere on the planet! Using the free app on your smartphone, you can send and receive SMS, email, and app-to-

app messaging – even when your ZOLEO device is turned off.

Their message functionality is exceptional, reflecting a deep integration with the newest technologies so the messaging experience remains familiar for the smartphone user. It comes with its own Australian SMS number and email, which you can share with your contacts using the check-in button. Unlike other satellite devices that require their antenna to be facing up, ZOLEO simply needs a clear view of the sky.



The Ocean Signal RescueMe PLB1 has a waterproof rating of 15-metres for 1-hour. Image: Ocean Signal

Does my device need to float, or be waterproof?

This depends on where you intend to use your device. If you're going out on the water, one like the [Ocean Signal RescueMe PLB1](#) is probably your best choice.

If you're a hiker, [cycle tourer](#), or heading off-road, it's unlikely you'll need your PLB or Satellite Messenger to have a high waterproof IP rating. Each device differs in its depth/time frame and floatation capabilities, so just go by what makes sense for what you'll use it for.



Always test the battery on your device before a trip and check the expiry date on PLBs. Image: ACR

Batteries

PLBs

How long batteries last before their expiry depends on the type of battery used in the model of PLB that you have, but it varies between about 6 -10 years.

You will need to either have the battery replaced by an authorised battery replacement centre, or send it back to the manufacturer when it's time to replace the battery. If you have activated your device in an emergency, you need to replace the batteries before relying on your PLB again.

If you haven't sent an alert, you will need to replace the battery before the expiry date listed. This varies, depending on the model. The price of replacing a battery will be different for each beacon, but you can expect it to be at least \$150-\$200.

Satellite Messengers

These devices generally use Lithium-ion batteries, but that might vary depending on the brand. In terms of battery life, the SPOT, for example, will last about 13 days in SOS mode.

You will need to keep batteries on hand out in the field to replace them if necessary.

View the full battery performance table with all the information [here on their website](#).



Registering your PLB is a simple and straightforward process.

Fees, Subscription Services, and Registration

PLBs

There are no yearly subscription fees required to use a PLB.



Your PLB will need to be registered/programmed with the [Australian Maritime Safety Authority](#). Registration is vital, as your device will have a unique number. It's also important to update your details if they have changed, as well as your trip information. This is so that in the event of a rescue, it's easier for the emergency services to find you.

Satellite Messengers

Satellite Messengers have a monthly or yearly subscription fee, depending on which payment plan you choose. They require you to create an account with the relevant company - for example, SPOT or [ZOLEO](#).

Once logged in, you are able to activate/register your device, choose a subscription plan, and lodge your personal details.



Purchase your emergency device from a reputable dealer. Image: ZOLEO

Does it matter where I buy?

The country you purchase your unit in is the country it is programmed for, so this is why it's important to buy locally. You won't be able to register your device in Australia unless you get the manufacturer to reprogram it with the Australian country code. There also may be an issue with whether the unit meets the Australian standards and requirements, if purchased from overseas.

While it may be tempting to grab a bargain from an international seller, it's recommended by the [Australian Maritime Safety Authority](#) that you choose one that complies with Australian standards. You can also check out the list of the PLBs [here](#) which meet those Australian standards, for reference.



Some devices have global coverage but they still must be registered in the country of purchase. Image: SPOT

PLBs & Satellite Messengers for International Use?

Every PLB uses the same global 406 MHz frequency and has approvals in multiple countries, so these are a great choice for overseas adventures.

They still need to be registered with the Australian authorities - then, if you need to activate it while travelling, the signal is sent to the relevant authorities in your country of travel. The Australian authorities monitor your situation and liaise with the relevant international authorities to ensure you get out of trouble safely.

It's also important to check with the manufacturer's website as well as the relevant authority in the country you are visiting, for information on international use and any restrictions.

[ZOLEO](#) is also connected to the Iridium satellite network, giving them global coverage.



There are five main points to note when looking to purchase a PLB or Satellite Messenger. Image: ZOLEO



Summary: PLBs & Satellite Messengers

- A messenger device has a yearly fee, while PLBs do not require any.
- All devices need to be registered with your personal details.
- A PLB communicates with government-run satellites, while a Satellite Messenger uses a private network.
- A Satellite Messenger has a check-in and an SOS button, and you can link your progress to an online page too. On the contrary, a PLB has only one rescue function.
- A PLB has a battery life of several years, and replacements must be done by the manufacturer or an authorised centre. On the other hand, you can replace the batteries in a Satellite Messenger yourself - though they need to be checked frequently, especially when in use.

Hopefully, this article answers enough about PLBs and Satellite Messengers that you can choose your own with confidence. More information is available [here](#) and, as always, [Snowys](#) is happy to help!

Happy adventuring - and stay safe when you're travelling off the beaten path!

Have you ever had to use a PLB or Messenger Device to be rescued? Let us know your experience in the comments!