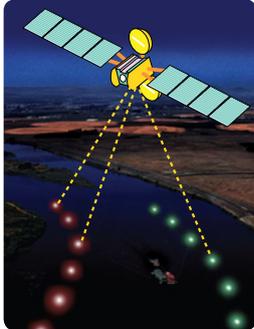
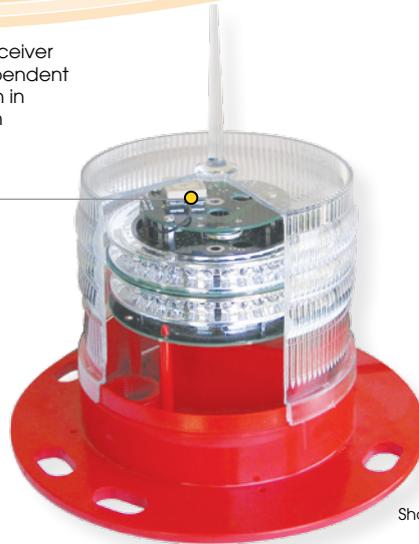


# GPS Synchronisation

## Via Internal GPS Module



Internal GPS receiver enabling independent lanterns to flash in synchronisation



Shown with cut-out lens

For flash synchronisation of lanterns installed over longer ranges, Sealite has developed an advanced GPS system. Lanterns are fitted with an internally integrated GPS module which also enables the lights to maintain their high IP68 waterproof rating.

Sealite's GPS system provides users with the ability to mark a channel, port or river with independently operating lanterns that all flash in synchronisation. This presents a clear outline of the channel each time the lanterns flash, and is particularly effective in overcoming background lighting, as opposed to indiscriminate flashing lights which may render the judgement of distance and navaid location difficult.

The Global Positioning System (GPS) receiver is housed within the Sealite lantern and no additional power supplies, aeriels or control systems are required. This lantern option is microprocessor-based and has been designed to provide maximum reliability and performance of the lantern over a wide range of environmental conditions.

Using overhead satellites, multiple GPS lanterns set to the same flash pattern will synchronise anywhere in the world.

#### How does it work?

Synchronisation is achieved using an internal algorithm based on the highly accurate time base and time data received from the satellites. The satellite data is provided from a number of earth stations using atomic clocks as the time base. At power-up the microprocessor checks that the internal GPS module is programmed correctly and is able to provide valid time base and time data.

The light then checks for day/night. If it is daylight the internal microprocessor will go to idle mode after approximately 10 seconds to reduce power consumption.

#### SeaFlare™ Technology

The inbuilt GPS receiver and advanced software of the Sealite synchronised lanterns allow for the adoption of SeaFlare™ channel marking - a unique system that cascades the synchronisation of channel lanterns in a uni or bi-directional flash pattern.

In Australia, the Port of Melbourne Corporation has adopted this technology from Sealite to clearly identify the channel leading into Station Pier - an area that regularly accommodates some of the world's largest passenger vessels.

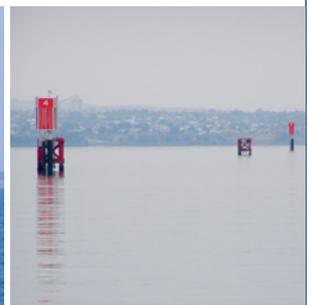
The neighbouring Port of Geelong utilise this technology to safely guide Aframax Tankers among other large sized vessels into harbour.

### The Sealite Advantage

- Longer range flash synchronisation via GPS satellites
- No limitation on distance or objects between lanterns
- Each lantern operates independently (no operator intervention required)
- Internal GPS module with no external components required, maintaining IP68 waterproof rating of lantern
- Clear identification of AtoNs against confusing background lighting
- Ease of installation
- 3x satellites need to be in view for the build in GPS receiver to collect time data
- Lanterns set to the same flash pattern will come into synchronisation



Port of Geelong GSM/GPS synchronised channel beacons, Australia



**Head Office:**  
Sealite Pty Ltd  
AUSTRALIA

Ph. +61 (0)3 5977 6128  
Fax. +61 (0)3 5977 6124  
Internet: [www.sealite.com.au](http://www.sealite.com.au)  
Email: [info@sealite.com.au](mailto:info@sealite.com.au)

Sealite USA  
USA (Gilford, NH)  
Ph. (603) 524-6066

Fax. (603) 524-8100  
Internet: [www.sealiteusa.com](http://www.sealiteusa.com)  
Email: [info@sealiteusa.com](mailto:info@sealiteusa.com)