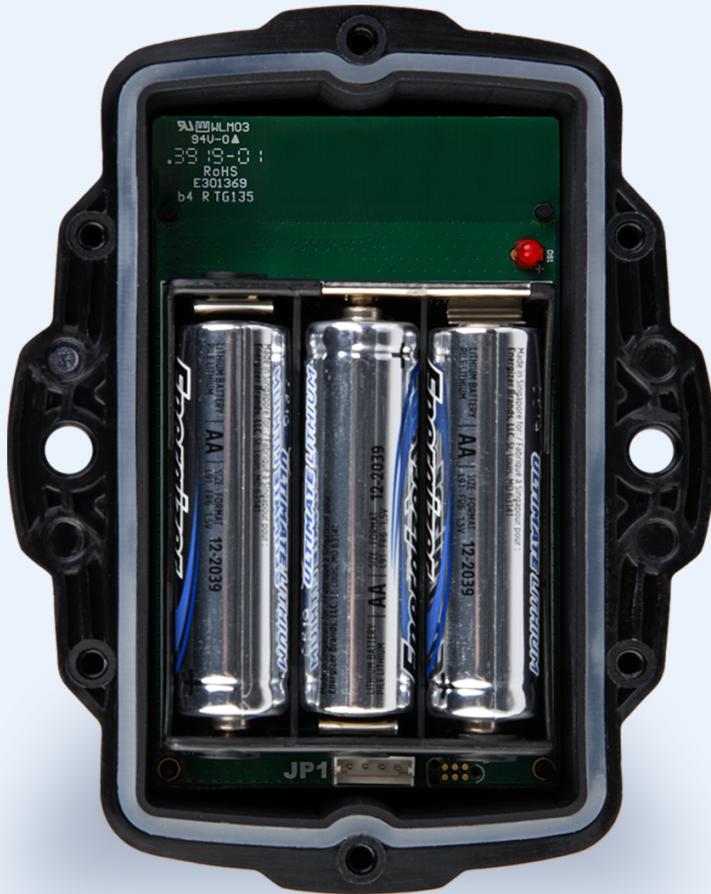


# Battery GPS Guide



## Oyster

- Next-generation of the Oyster series – Ultra-rugged GPS asset tracking device featuring 10+ years battery
- Deploy-once battery life with up to 10+ years on only 3 x AA user-replaceable batteries
- Powered by off-the-shelf Lithium or Lithium Thionyl Chloride (LTC) batteries for extreme temperature operation
  - Tracks assets when they're on the move and enters sleep mode when stationary to conserve power
- Weatherproof and ultra-rugged IP67 housing
- LTE-M / NB-IoT Connectivity

## Oyster Features



### High Precision

GPS, GLONASS, Galileo positioning systems are used simultaneously for enhanced accuracy and faster fixes.



### Rugged & Weatherproof

IP67 rated housing ensures the device can withstand fine dust, high-pressure spray, submersion for 30 minutes in 1m of water, and extreme temperatures.



### Off-the-Shelf Batteries

Powered by 3 x AA Off-the-Shelf Lithium or Lithium Thionyl Chloride (LTC) batteries for enhanced temperature operation (-30°C to +60°C).



### Battery Life Monitoring

Built-in 'Battery Low' and 'Battery Critical' alerts.



### Wire-Free Installation

Compact and concealable. Multiple installation options for covertly and easily securing the device to assets with screws, bolts, cable ties, rivets, and more. Stainless steel screws supplied.



### LTE-M/NB-IoT Network Roaming

Supports automatic roaming between LTE-M and NB-IoT networks with minimal delay and marginal impact on battery life or performance (roaming SIM required).



### Flexible Configuration

Configure device parameters such as heartbeat rate, movement and accelerometer settings, and more to fit any tracking application.



### Periodic or Movement-Based

Adaptive tracking technology detects when the device is on the move and increases the update rate, providing detail when you need it while conserving battery when stationary.

## Default Settings

By default, the Oyster3 is set up for trip tracking. The following default settings apply:

**Out of Trip:** 12 hour heartbeats. This is a GPS point and an upload every 12 hours.

### In Trip:

- Start trip threshold of 250m
- Upload on trip start.
- GPS points every 2 minutes
- Upload every 30 minutes.
- End a trip after 5 minutes of no movement.
- Upload on trip end.

# Battery GPS Guide



## Yabby Edge

Ultra-rugged and compact Indoor/Outdoor battery-powered asset tracker. Features cloud-based location solving for over 10 years of battery life.

- GNSS (GPS/BeiDou), Wi-Fi AP MAC Address Scanning, and Cell Tower location for indoor/outdoor asset management
- Deploy-once battery life with 10+ years on only 3 x AAA user-replaceable batteries
- Cloud-based location solving (versus on-device) for substantial power savings
- Tracks assets when they're on the move and enters sleep mode when stationary to save power
- Weatherproof and ultra-rugged IP67 housing
- LTE-M / NB-IoT Connectivity

## Yabby Edge Features



### Indoor / Outdoor

GNSS, Wi-Fi AP MAC Address Scanning, and Cell Tower location for indoor/outdoor asset management.



### Cloud-Based Location Solving

Transfers the location processing workload from the device to the cloud for substantial power savings.



### Rugged & Weatherproof

IP67 waterproof and dust-resistant housing for extreme durability.



### Off-the-Shelf Batteries

Powered by user-replaceable, off-the-shelf 3 x AAA Lithium batteries with 'Battery Low' and 'Battery Critical' alerts.



### Wire-Free Installation

Compact and concealable. Multiple installation options for covertly and easily securing the device to assets with screws, bolts, cable ties, rivets, and more. Stainless steel screws supplied.



### LTE-M/NB-IoT Network Roaming

Supports automatic roaming between LTE-M and NB-IoT networks with minimal delay and marginal impact on battery life or performance (roaming SIM required).



### Intelligent Power Management

Optimize power consumption with Intelligent Power Management tools including built-in balanced, low-power, and ultra-low power network registration strategies, accelerometer-based location scan throttling, and more.



### Flexible Configuration

Configure device parameters such as heartbeat rate, movement and accelerometer settings, and more to fit any tracking application.



### Periodic or Movement-Based

Configure parameters to send updates based on set time intervals or when movement occurs. Adaptive tracking technology detects when the device is on the move and increases the update rate, providing detail when you need it while conserving battery when stationary.



### Sleep Mode

Stationary devices enter sleep mode until movement occurs to conserve battery life and optimize data usage.



### Impact Detection

Configure impact-detection alerts when g-forces are exceeded by a user-defined threshold.



### Tip Detection & Rotation Counting

Axis angle reporting, tip detection and rotation counting (planned).

## Default Settings

**Out of Trip:** Heartbeat every 12 hours (location scan + upload)

### In Trip:

- Location scan + Upload on start of movement
- Location scan every 3 min while on move
- Upload every 30 min (so 10 records are uploaded at a time)
- Location scan + upload on end of movement.
- Movement is recorded as starting after ~4 seconds of accelerometer activity. Movement ends after 5 min with
- no accelerometer activity.

## In the Box



## Set Up

### 1. Insert Sim Card

Locate the silver SIM holder on the Printed Circuit Board (PCB). There is an image on the silkscreen which shows the SIM orientation

Slide the SIM into the holder with the keyed corner first and the SIM contacts orientated down to the main board.

For quick plug-and-play installs, there are additional Dart3 harness options (OBDII harness, Cig Lighter harness) - or the Bolt2 is a good option. The benefit of a 3-wire 'hard-wired' install is that the device can't be easily dislodged/removed.



## 2a. Insert Batteries

### Key Requirements:

**The Oyster3** requires 3 x AA batteries. Selecting a suitable set of batteries is critical to the overall device performance.

4-16V Input Voltage Range

LiFeS2 (i.e. Energizer Ultimate Lithium) or LTC battery types supported.

The Yabby Edge requires 3 x AAA 1.5V batteries. For best results, we recommend Energizer Ultimate Lithium (L92) batteries.

### These batteries::

- Have good temperature tolerance (-20° -> +60°C operating range)
- Low rate of self discharge - so long shelf life.
- Readily available at supermarkets or hardware stores, and are user replaceable.

## 3. Be sure to record the IMEI and the details of the car in the Vehicle Details table at the end of this document to update in Locate2u.

## Installation

Once inserted, the LED should flash continuously. If the LED does not flash, it means the unit has not yet reset. In this case, remove the batteries for a minute or two to allow any residual charge to drain, and then reinsert them. The LED will only flash for the first few minutes after first powering on the device - to help indicate it is 'alive' after this it is disabled to conserve battery.

Alkaline batteries may also be used, however use care. Alkaline batteries can often be found cheaply and easily, so are attractive.

But..

Lower cost Alkaline batteries often have very high self-discharge rates, and will be partly discharged already just from sitting on the shelf at the store!

Alkaline batteries often don't have the same temperature tolerance as LiFeS<sub>2</sub> options

We have found some Alkaline battery types prone to early, unexpected failure (i.e. halfway through their expected capacity)

There are exceptions to the above however - high quality Alkaline batteries do exist! Just be careful in your selection

### 4. Seal the Housing

Seal the device carefully to achieve the IP-67 rating.

It is difficult to provide an exact torque figure with which to tighten screws. This is because upon first sealing the device, the screws cut threads into the nylon glass housing. So on the first assembly, the screws may be quite stiff. If the housing is opened and then resealed, the torque required for resealing will be lower than that of the first assembly.

The key goal we are trying to achieve in sealing is firm, even pressure on the silicone seal - as this is what keeps the device water-tight and dust-proof.

To achieve this:

1. Ensure that the clear silicon seal is in good condition, is lying flat, and is not fouled by any plastic debris or other material.
2. Close the housing, and gently squeeze it shut. Foam on the lid will compress against the batteries, holding them firmly in place.
3. Tighten the 4 screws to uniform tightness - such that there is an even gap at all points along the interface between the base and lid.
  - a. It is a good idea to use a screwdriver with a torque limiting clutch, start with the screwdriver on the lowest setting, and gradually increase the torque until there is a small gap between the base and lid (no need to overtighten as you risk cracking the housing)
  - b. The final torque when finished will be around 0.7Nm most of the time. (Value is a guide only)

### 5. Activate the Unit on your account

Contact [support@locate2u.com](mailto:support@locate2u.com) and provide the IMEI number (on the box) and your Locate2u Team Profile Name, it should be in your Welcome to Locate2u email (support can assist you to get this if you are unsure)

## Troubleshooting

### I have just powered my device on and it has connected but doesn't have a GPS Fix?

It is most likely that the device simply failed its first fix attempt (it will attempt one on start up) - if it fails, it will go back to sleep until the next scheduled upload. On default settings, this means not for 12 hours, unless you move over 250m from your position (to start a trip). So to attempt another, move to a location with good GPS reception, remove the batteries for 30 secs, and reinsert. This does not do anything special, but it reboots the device and will mean it will start up and attempt another fix and upload.

If the device still fails to connect:

#### 1. Check Batteries

The devices require a minimum 3.3V to operate. However, it's not as straightforward as simply checking we've got over this level of voltage.

If you are using LiFeS2 batteries (i.e. Energizer Ultimate Lithium) - typically they will report a voltage of somewhere between 4.4 → 4.7V. Check the battery voltage level, if it is below to this range, the batteries are likely flat and require replacement.

If you are using LTC batteries, typically these will no longer be operating correctly at around 10.5V total.

To check the voltage, you can go here:

<https://www.oemserver.com/installer>

The device serial number is on the box the unit was shipped in (if you have lost this, please contact [support@locate2u.com](mailto:support@locate2u.com) and they will be able to assist).

**Device Serial Number**

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**Device Type**  
Oyster2

**Last Communication** ✓  
6 mins ago (06 Jul 2022 21:07:53 UTC)

**Last Commit** ✓  
6 mins ago (06 Jul 2022 21:07:53 UTC)

**Last GPS Update** ✓  
7 mins ago (06 Jul 2022 21:07:03 UTC)

**Battery Level** ✓  
4.264 V

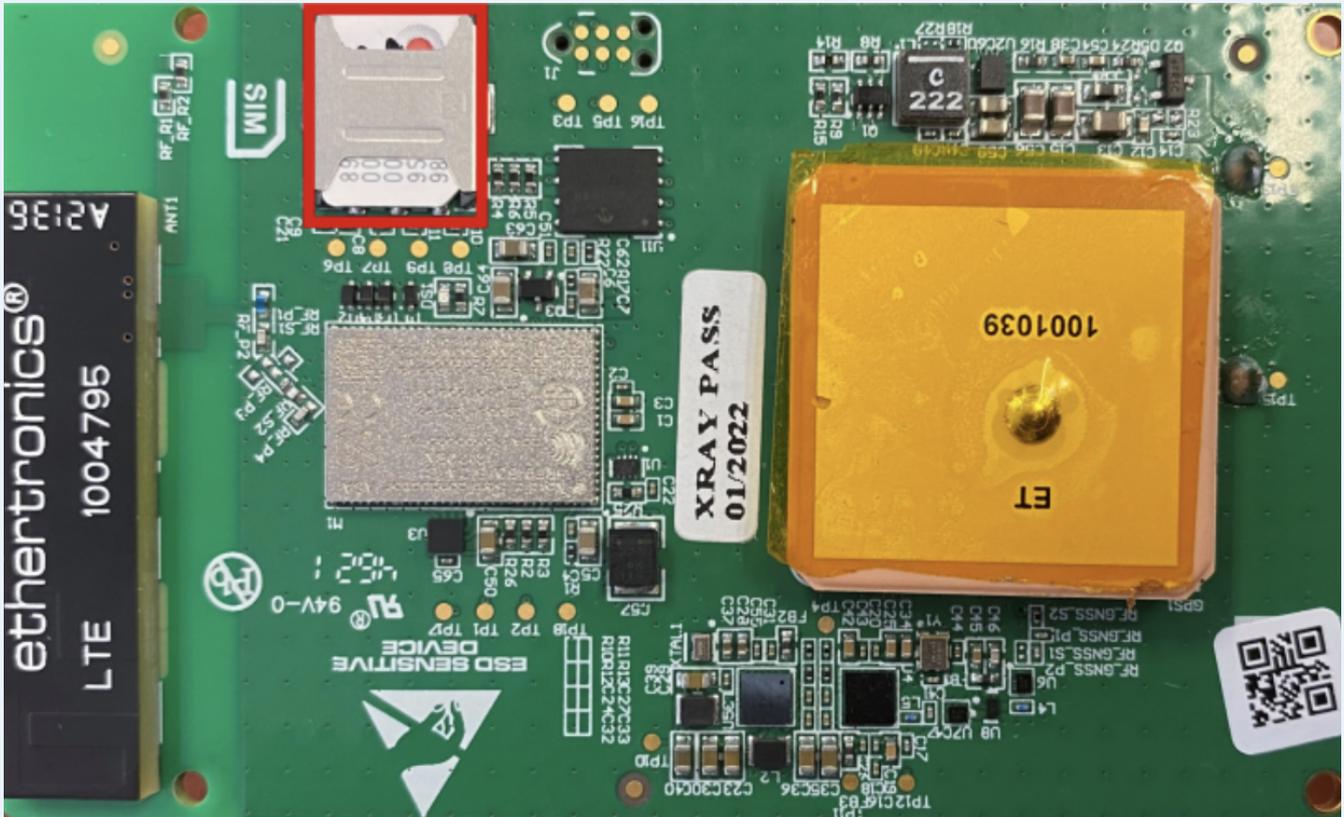
**External Power** ✗  
-

#### 2. SIM Card/Setup Issues

If this is the first time provisioning the device, or the first time we've used this particular SIM, there is a good chance the issue is to do with the SIM card and/or network configuration applied to the device.

### 2.1. Check correct installation

Sometimes, the SIM just hasn't been inserted the right way up, or pushed all the way into the slot. Double check the orientation and installation is as per the image shown. (Gold pads facing down, keyed corner into the slot first)



If you find the SIM is not correctly installed - install it properly and remove/reinsert batteries to reboot the device.

### 3. Contact Support

We are here 24x5 to help you, For **Support Requests** please contact [support@locate2u.com](mailto:support@locate2u.com) or use the live **CHAT SUPPORT** button in the system, found in the support menu at the base of the menu bar on the left hand side of the screen. You can also call us at these numbers:

 1300 163 087

 833 245 1044

 808 196 1115

 +1 833 245 1044

