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With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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1. INTRODUCTION



The Oyster is a compact, rugged GPS tracking device that has been designed for locating and tracking non-powered assets such as containers, trailers, skip bins, and others.

The Oyster Sigfox device uses the Sigfox network to transmit its data to the server.

This “Getting Started” guide is designed to help you get your device setup and working as quickly as possible.

2. CONTACT INFORMATION

For the latest version of this document and other product information please visit our website at www.digitalmatter.com/support

Please also follow the link to our online knowledgebase where you can find other support documents and information.

3. IN THE BOX



You'll get a compact box containing the Oyster. The 6 housing screws are in a small packet inside the housing.

Take care when handling the PCB that you hold it by the edges, and do not directly touch the circuits to reduce the chance of damage by static.



4. BATTERIES

4.1. Type

The Oyster Sigfox uses 3 x 1.5V AA batteries that are readily available from your local supermarket.

You can use 1.5V Alkaline or 1.5V Lithium batteries. Lithium batteries are more expensive, but they offer longer battery life and will operate well over a larger temperature range, especially in colder temperatures.

For example, Energizer Ultimate Lithium AA batteries.

4.2. Insert the batteries



Take care to insert the batteries with the correct polarity. The springs are the negative terminals.

Insert the batteries with the correct polarity otherwise you will damage the device.

4.3. What Happens After the Batteries Are Inserted

When the batteries are inserted the internal LED will begin to flash for a period of time to indicate that the device is operational. The LED will then turn off and will not be used again to save power.

The Oyster first tries to get a GPS fix to obtain an up to date time and position from the satellites. It will try to get a GPS fix for up to 10 minutes so it is a good idea to place the Oyster in an area where it has a reasonable view of the sky, either outdoors or near a window.

Once the device has obtained a GPS fix it will attempt to transmit its position on the Sigfox network, and then go into a sleep mode in order to conserve power.

4.4. LED Behaviour

On power-on the LED will flash (once per second) while the device gets a GPS fix. This is to provide visual feedback that the Oyster has powered on and is operational.

Once the Oyster has got a position and transmitted it, the LED will switch off and **will not be turned on again until the batteries are replaced.**

4.5. Closing and opening the housing



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

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 6 screws to a uniform tightness. On the first assembly, the screws may be quite stiff. An electric screwdriver with a torque limiting clutch is recommended. The torque setting should be 0.7 Nm.



4. For reference: the screws used are a thermoplastic screw: 3.5mm x 12mm (BN82428).

If you wish to replace the batteries and open the housing, be sure to check that the silicon seal is in good condition before closing and sealing the housing again.

5. DEFAULT SETTINGS

5.1. Trips

By default, the Oyster is setup for trip tracking. This allows you to set different logging parameters for when the device is “In Trip” or “Out of Trip”. For example, you might want only to get one update per day if the Oyster is not moving, but when it moves you might want a position every 10 minutes.

The following default settings apply:

1. **Out of Trip:**
 - a. **24 hour “heartbeat” = a GPS point and upload every 24 hours**
2. **In Trip:**
 - a. **GPS point and upload every 10 minutes**

These settings and others are configurable.

The defaults provide a good starting point. It is important to monitor and tweak your settings to ensure the battery life is acceptable. Check out our online knowledgebase or contact your reseller if you need more help with this.

6. OYSTER PROGRAMMING AND CONFIGURATION CABLE

The Oyster programming and configuration cable allows you to connect an Oyster to a USB port on your Windows PC and either update the firmware on the device or change the device settings. Settings can be changed over the air by downlink messages. The Oyster firmware can only be updated via the programming cable.

We recommend that each customer (or their technical support team) purchases a programming cable so that they can update devices if needed. Check the DM support web site for the latest info and firmware versions.

7. DEVICE INSTALLATION

The Oyster can be mounted on the asset to be tracked using screws, bolts, cable ties, or industrial adhesives. When choosing a mounting point, you have two competing goals:

1. To minimise the chances of the device being accidentally crushed or dislodged.
2. To maximise the GPS and network signal

Since the Oyster is a battery powered device, GPS reception is important to its performance. The biggest user of the battery is the GPS and the power needed to operate it during each GPS position fix. So ideally mount the device where it has a view of the sky.

Choose a location that will not result in elevated temperatures. For instance, mounting the Oyster in direct sunlight on the dash of an unventilated cabin may overheat the batteries, leading to abnormally short service life.

8. GETTING ONLINE

8.1. Sigfox ID

The Sigfox network requires the device’s unique Sigfox ID which is printed on the barcode label. The barcode label is stuck on the PCB, on the outside of the box, and there is also a spare label inside the box if you need to stick it onto an installation checklist or similar.



8.2. PAC Code

The PAC code is like a “one time password” for the device to be registered on the Sigfox network. You will need the PAC when registering your device.

You will need to register and activate the Oyster Sigfox device on your Sigfox airtime account before it will be able to send data on the network. This process can be different depending on who is supplying you the airtime – please speak to your Oyster device supplier to get details for the process for your device airtime.

8.3. Airtime Plans

For reference, Sigfox offers 4 levels of airtime plans:

PLAN	Uplink (from device)	Downlink
One	2	0
Silver	50	1
Gold	100	2
Platinum	140	4

The Oyster Sigfox tracks the number of messages it sends and will ensure that it doesn't exceed the plan settings.

8.4. Advanced Settings

Digital Matter has implemented a protocol using the Sigfox downlink messages to allow administrators to configure the device parameters via the network.

If you are using Digital Matter's Telematics Guru or Assets.Online platform then you can configure devices directly from the platform.

If you are not using one of these platforms then you use an Oyster programming cable with the configuration tool to update settings, but this requires you to physically connect to the device.

Please check our online knowledgebase for articles describing the advance setup features of the Oyster.

www.digitalmatter.com/support