



OCEAN
GUARDIAN

Powered by
Shark Shield® Technology



USER MANUAL

FREEDOM+ SURF

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1 Introduction

Ocean Guardian is for ocean lovers. It is the world's only scientifically proven and independently tested electrical shark deterrent technology.

Sharks have small short-range electrical receptors in their snouts used for finding food. Ocean Guardian's unique three-dimensional electrical waveform instantly turns sharks away by causing unbearable spasms in these sensitive receptors.

Trusted by professional adventurers around the world, Ocean Guardian is a safety device providing peace of mind while supporting the conservation of sharks. If you're serious about adventure, you use Ocean Guardian.

About the FREEDOM+ Surf

The Ocean Guardian FREEDOM+ Surf supersedes the SURF7 and includes vast improvements in design and operation. The design of the FREEDOM+ Surf is the result of collaboration with Ocean & Earth and 2 x World Surfing Champion Tom Carroll.



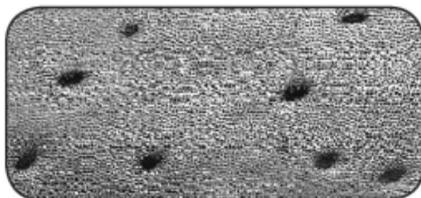
World Champion Surfer Tom Carroll

It features a transferable Power Module housed in the custom-designed Ocean & Earth Tail Pad kicker. This allows you to easily charge and move the Power Module between boards. When you buy a new surfboard, simply purchase a new Ocean Guardian Ocean & Earth Tail Pad and Decal Antenna and attach it to your new surfboard. If you have an existing board, simply remove the old grip pad and fit the new Ocean Guardian Ocean & Earth Tail Pad and Decal Antenna, then attach the Power Module and you are ready to go.

The all-important antenna electrodes have been designed as a sticker thin adhesive decal, which is applied to the underside of the surfboard. With the Power Module weighing just 250 grams, and the near zero drag of the 500 microns thin adhesive Decal Antenna, there is no impact on surfing performance. The FREEDOM+ Surf includes everything you need to turn your surfboard into an electrical shark deterrent and at the same time have the confidence to push yourself and your board to the limits.

How does it work?

Ocean Guardian devices generate a protective electric field which is detected by a shark via its short range sensory receptors called Ampullae of Lorenzini. These Ampullae of Lorenzini are found on the snouts of predatorial sharks.



Ampullae of Lorenzini on the snout of a shark (left) and under magnification (right)

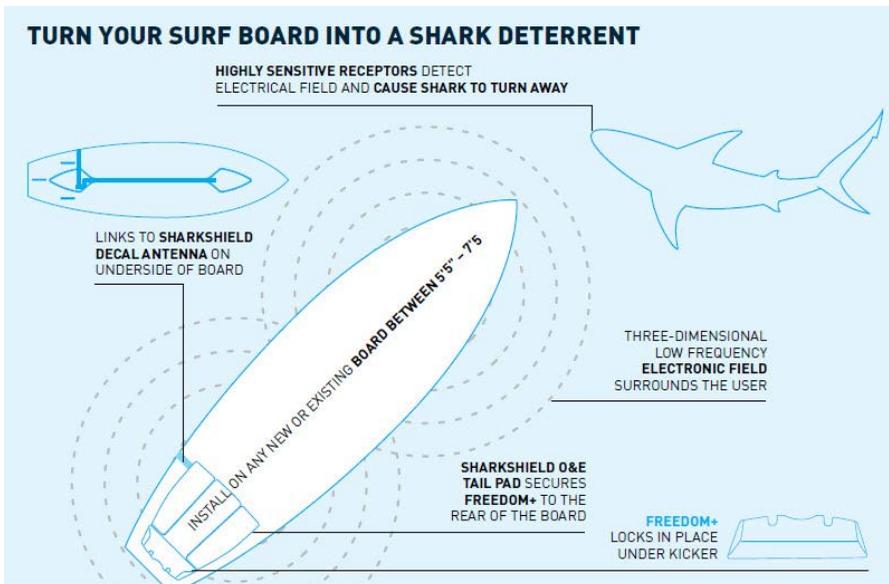
The electric field causes discomfort to a shark and this increases the closer it gets to the electric field, until it becomes intolerable. The electrical field transmitted by Ocean Guardian devices has no known long term effect on sharks. It also has no effect on other marine creatures.

IMPORTANT: Ocean Guardian devices do **NOT** attract sharks. This is a myth and independent scientific research has shown that electrical deterrents do not attract sharks. As electrical currents can only travel very short distances through water, the Ocean Guardian creates only a very localized electrical field.

Shark electroreceptors can only sense electrical currents at very short distances, typically less than half a meter. When a shark approaches an Ocean Guardian, these electroreceptors are over-sensitized, causing the shark to turn away.

Ocean Guardian FREEDOM+ Surf Electrical Fields

Ocean Guardian has been scientifically proven and independently tested to be effective at turning sharks away. The following image displays the electronic fields surrounding the FREEDOM+ Surf when active.



For detailed scientific research which validates the Ocean Guardian capability, please visit our website at www.ocean-guardian.com/technology, or our Ocean Guardian YouTube channel.

2 How to Use the Documentation

Overview of this User Manual

Use this manual to learn how to:

- Mount your Ocean Guardian unit.
- Turn the Ocean Guardian on and monitor operational status.

Manual Conventions



Warnings: Instructions that, if ignored, could result in death or serious personal injury caused by dangerous voltages or incorrect operation of the equipment. These must be observed for safe operation.



Cautions: Instructions warning against potential hazards, or to detail practices that must be observed for safe operation and to prevent damage to equipment or personnel.



Important Note: Information important to installation, attachment or operation of equipment.

Typographic Conventions

- Operation states are in bold, e.g. **On/Off**
- Hardware elements are in bold capitals, e.g. **GREEN LED**

3 Warnings & Safety Information



1. Sharks can be dangerous and often unpredictable creatures and we encourage people to use an Ocean Guardian when working in, or enjoying the sea, to minimize the risk of shark attack. While extensive testing has been performed, and great care taken to develop and manufacture the Ocean Guardian range of products, it is impossible to guarantee that all sharks will be deterred under all circumstances. Water based activities in the presence of sharks is inherently dangerous; therefore, we recommend that if a shark is sighted, the user gets to safety rather than continue with their water activity.
2. A large pulsing current is emitted from the Ocean Guardian antenna to produce the protective electric field. Anyone with any electronic medical device (EMD) such as a pacemaker, who is pregnant, or has a health condition which could be affected by the electric field, **SHOULD NOT USE THE DEVICE**. Some examples of health conditions include heart disease, a history of heart problems, peripheral vascular disease, stroke, a history of fainting or epilepsy, or lung disease. Users unintentionally being in close proximity, or in contact with the antenna, may possibly suffer muscle spasms in varying degrees; we recommend that users may need to make adjustments to limit contact in these situations.
3. Positioning of the Ocean Guardian antenna/electrodes is critical to the device's performance. Do not attempt to use the Ocean Guardian in any way other than what is described in this user manual.
4. Ocean Guardian is designed for sea water use only.
5. Ocean Guardian has been designed and tested as a personal device. Do not attempt to join multiple Ocean Guardians together or wear multiple devices.

6. Some bottom-dwelling and non-predatory sharks such as the Wobblygong, Carpet and Port Jackson sharks have limited active Ampullae of Lorenzini. Therefore, the Ocean Guardian may have limited or no effect on these sharks.
7. **Power Module Battery Warnings:**
 - Do not use any charger other than that specifically provided for use with the Power Module.
 - The Power Module contains Li-ion batteries. Ensure it is not stored in high temperatures.
 - Do not expose batteries to heat or fire. Avoid storage in direct sunlight.
 - Do not short-circuit the Power Module.
 - Avoid subjecting the Power Module to mechanical shock.
 - Do not store batteries longer than 1 month in a discharged state.
 - Do not store batteries longer than 1 year without recharge.
 - The batteries in the Power Module must be recycled or disposed of properly.
 - If lithium-ion batteries are packed with, or contained in equipment, then it is the responsibility of the shipper to ensure that the consignment is packed in compliance with the latest edition of the IATA Dangerous Goods Regulations section II of either Packing Instruction 966 or 967 in order for that consignment to be declared as NOT RESTRICTED (non-hazardous/non-Dangerous). If lithium-ion batteries are packed with or contained in equipment, UN No. is UN3481.
 - For worldwide sea transportation see the IMO-IMDG code and special provision 188.
 - For European road transportation see ADR special provision 188.
 - Do not ship your Transferable Power Module with your surfboard when flying. Lithium-ion batteries must be carried in personal carry-on luggage.

Disclaimer

Whilst every effort has been made to ensure the accuracy of this manual we are not responsible for any errors or omissions within it. The product specifications and descriptions within this manual will be subject to improvements and modifications over time without notice, as changes to software and hardware are implemented. For the most up-to-date version of this user manual please visit our website.

4 Quick Start FREEDOM+ Surf Install

Before getting started, ensure you have the following Ocean Guardian FREEDOM+ Surf bundle items:

1. FREEDOM+ Surf Transferable Power Module.
2. Charging Dock with international power adapter charging options.
3. Ocean & Earth Tail Pad / Decal Antenna.
4. E-field Control Kit.
5. Tail Pad Kicker Support.

Visit www.ocean-guardian.com/video to view videos showing how to remove an existing tail pad and how to install the new Tail Pad / Decal Antenna. You may wish to ask your local surf shop to affix the Tail Pad / Decal Antenna to your surfboard.

Step 1. Thoroughly clean the board, the tail pad area, the underside of the board where the decal antenna is to be positioned, and the rail area where the antenna rolls around. Use a solvent such as mineral turpentine (follow safety instructions) to remove all traces of wax, dust, dirt, etc., along with fresh water and soap. Remove all traces of the solvent and allow to dry completely for 24 - 48 hours before application. Even new surfboards must be cleaned.

Step 2. Place the diamond shaped decal antenna electrodes in the center of the underside of the board. Use the stringer to align the center of the diamond shaped electrodes. Mark out the position of the decal with a pencil before sticking the decal to the surfboard.



Step 3. Slide the antenna down the board and ensure the part of the ribbon cable that wraps around the board rail to the tail pad is no more than 25mm (1") in front of the most forward left fin. Now peel off the backing of the tape that has an **A** on it for the bottom electrode. Apply.

Step 4. Remove the tape backing from the center ribbon cable marked **B**. Apply using the stringer as a straight line.

Step 5. Remove the tape backing from the top electrode marked **C**. Apply.

Step 6. Remove the tape backing from the ribbon cable marked **D**. Apply.

Step 7. Remove the tape backing from the ribbon cable marked **E**. Hold tightly and apply as you roll around the rail ensuring no gaps or folds as you roll the ribbon cable around the tail to the top of the board.

Step 8. With your board rolled over to the top, position the deck housing that holds the Transferable Power Module slightly forward of your leg rope attachment. Ensure it is centered and that you do not have a twist in the ribbon cable. Remove tape backing of the deck housing marked **F**, apply.

Step 9. Now remove the remaining adhesive from the ribbon cable marked **G**, and fold the excess of the ribbon cable so that it fits flat and neatly under the tail pad. Folding does not damage the cable.

Step 10. Remove the tape backing from the center tail pad marked **H**, and apply carefully starting at the top of the deck housing aligning with the screw holes, rolling forward slowly pressing down and ensuring it is centered. Then apply both sides of the tail pad marked **I** & **J**. Allow 24 hours for maximum bond of all tail pad and decal antenna components before use – strongly recommended.



Important Note: Insert the supplied foam Tail Pad Kicker Support when the FREEDOM+ Surf Power Module is not fitted to the kicker.

Adjusting Electrode Power Output

The power output from the Ocean Guardian FREEDOM+ Surf decal antenna electrodes may affect users in different ways. If an individual is overly sensitive to transmissions from the decal antenna electrodes, an E-Field control kit can be purchased from our website, to partially cover the surface area of the decal electrode, to reduce the power and/or size of the electrical field.



WARNING: Covering the surface area of the decal electrode will reduce the device's effectiveness. Each decal sticker applied to an electrode will reduce the power output and size of the electric field by approximately 25% from that electrode.

5 Attach the Power Module and Turn On

1. Use the supplied hexagonal Allen key to unscrew the two bolts holding the Tail Pad Kicker Support in place if installed and remove it.
2. Ensure the Power Module is **Off**, pull back the tail pad and place the Transferable Power Module down (do not slot in) on to the **ANTENNA CONNECTOR** positioned under the tail pad. Ensure the unit is firmly seated onto the connector.



3. Carefully insert the two bolts through the guide holes in the Power Module and tighten them until firm. **DO NOT OVER-TIGHTEN.**



- Slide the **ON/OFF** switch to the left to turn the Power Module **On**. **GREEN LED** flashes indicate the charge level of the battery. **RED LED** flashes indicate low battery and are accompanied by warning tone **beeps**.



← Slide left to
switch On

- Slide the **ON/OFF** switch to the right to turn the Power Module **Off**.



Important Note: The water sensor is an automatic feature measuring an electrical connection between the two electrodes. It cannot be manually switched on or off.

6 Operational LED Status Indications

The FREEDOM+ Surf Transferable Power Module has a **GREEN LED** and **RED LED** to indicate operation states and the battery charge level. It also provides warning tone **beeps** in various operation states.

LED State	LED Indication
Start-up Self-check	RED LED illuminates for 1 second and then flashes quickly twice. If it passes the self-check the unit will beep and at the same time the RED LED will turn Off . The device then displays the Battery Status Condition LED flashes.
Battery Status (after self-check)	100% Battery: GREEN LED flashes 10 times 90% Battery: GREEN LED flashes 9 times 80% Battery: GREEN LED flashes 8 times 70% Battery: GREEN LED flashes 7 times 60% Battery: GREEN LED flashes 6 times 50% Battery: GREEN LED flashes 5 times 40% Battery: GREEN LED flashes 4 times 30% Battery: GREEN LED flashes 3 times 20% Battery: RED LED flashes twice with simultaneous beeps 10% Battery: RED LED flashes 10 times with simultaneous beeps
Not Submerged	GREEN LED flashes approximately 4 times a second
Submerged - normal operation	GREEN LED is illuminated
Low Battery - ½ hour of operation remaining	The standard GREEN LED indication is interrupted every 3 seconds by a RED LED which illuminates for less than 1 second. A beep occurs when the RED LED turns On .
Fault or Antenna Short Circuit	GREEN LED and RED LED will flash alternately with continuous beeps

LED Charging Indications

LED State	LED Indication
Charging	RED and GREEN LED illuminated
Fully Charged	RED LED illuminated GREEN LED Off

7 Charging the FREEDOM+ Surf

The FREEDOM+ Surf can be charged using two methods:

1. FREEDOM+ Surf Charging Dock, or
2. FREEDOM+ Surf 12VDC Car Charger.



Caution: Thoroughly dry the charger pin area on the Ocean Guardian Power Module before connecting it to the charger. Be especially vigilant when charging the Ocean Guardian immediately after it has been used in water.

FREEDOM+ Surf Charging Dock

1. Attach the 12VDC power supply to the FREEDOM+ Charging Dock and connect it to a power source. Note: A **RED LED** indicates power is connected to the Charging Dock.
2. Attach the FREEDOM+ Power Module to the Charging Dock.
3. A solid **RED** and **GREEN LED** illuminates when the FREEDOM+ is charging.



4. The **GREEN LED** is no longer illuminated when the FREEDOM+ Transferable Power Module is fully charged. Note: A full charging cycle takes approximately 2-3 hours.

External Power Pack

1. Attach the Car Charger to a 12VDC power source and connect it to the FREEDOM+ Power Module.
2. A **RED LED** illuminates when the power pack is connected to power.
3. A solid **RED** and **GREEN LED** illuminates while the Power Module is charging.
5. When the Power Module is fully charged the **GREEN LED** is no longer illuminated. Note: A full charging cycle takes approximately 2-3 hours.



Important Note: We recommend each Ocean Guardian device is stored with some charge when stored for long periods of time.

8 Essential Maintenance and Testing

1. The Ocean Guardian FREEDOM+ Surf electronics should be rinsed in fresh water after use, dried, and stored in a cool, dry place out of the sun.
2. Both connectors should be kept free of dirt and sand at all times. Ensure both connectors are clean before installing the Transferable Power Module.
3. Leave your Ocean Guardian to dry before placing it in storage. Avoid direct sunlight when drying the unit.
4. Please be sure to protect the Decal Antenna from any deep scratches which could damage the electrodes or the covering decal.
5. The tail pad should never be used without either the Transferable Power Module, or the foam Tail Pad Kicker Support in place.
6. We recommend each Power Module is stored with some charge when stored for long periods of time.
7. You may notice that the stainless-steel electrodes can discolor. This is called "tea staining" and is the result of electrolysis. There are no materials currently available that this will not occur with. This does not affect Ocean Guardian performance, but we recommend you clean the stainless steel (marine grade 316L) with either WD40, or an electronic circuit board cleaner.
8. The base plate deck housing has an O-ring which provides a seal between the base and the Transferable Power Module. Assuming you surf regularly every week, you should change this O-ring once a year.
9. Ocean Guardian devices perform a self-check each time they are turned on. To confirm the device functions effectively you can also:
 - a. Place your hand close to the antenna/electrodes to feel the electric field pulsing when the device is submerged salt water .
 - b. Purchase an Ocean Guardian Tester to verify whether the Ocean Guardian is producing an electric field.

**Warning:**

- Thoroughly dry the charger pin area on the Ocean Guardian before connecting the charger. Be especially vigilant when charging the Ocean Guardian immediately after it has been used in water.
- Under no circumstances should you attempt to repair the Ocean Guardian as this will void any warranty.

9 Product Specifications

Product Feature	Specification
Maximum Operating Depth	50 meters (164 feet)
Storage Temperature	0°C - 60°C (32°F – 140°F)
Operating Temperature	12°C - 40°C (53.6°F – 104°F) Lower temperatures will reduce operating time
Battery pack life	Nominal 1000 charges
Operating Time (in water)	5-6 hours
Out of water sensing / detection	Yes
Battery Type	7.2V Li-ion (3000mAh)
Battery Charge Storage Life (off state)	6 months at 40% battery charge
Battery Charging Dock	Input: 12VDC Output: 7.0VDC~8.4VDC / 2000mA
Charge time: Charging Dock & Car/Boat Charger	Up to 3 hours from empty battery to full
Output - During operation	115VDC pulses (approximate)
Output - Time Between Output Pulses	0.6 seconds
Output - Short Circuit Protection	Yes
Protective Field Strength	>1v/m peak @ 1m from center of electrodes
Dimensions - main unit (without antenna)	208mm L x 28mm W x 63mm H (8.1" x 1.1" x 2.48")
Dimensions – FREEDOM+ decal antenna	235mm L x 137mm W
Weight (main unit)	250 grams (8.82 oz)
Charging Dock Compliances	UL (UL60065/File no. E251844); FCC (Part-15/File no. LCS1502060308E); CE (EN55013/File no. LCS1502060307E); RCM (AS/NZS60065/SAA-161746-EA).

10 Warranty

For Ocean Guardian Products Purchased in Australia & New Zealand:

CONSUMER PRODUCT WARRANTY

When you purchase an Ocean Guardian product, you have the peace of mind in knowing that your product is covered by Ocean Guardian's Standard Warranty. All Ocean Guardian electronic products have a 1-year warranty (excludes accessories like Tail Pad / Decal Antennas which have a 3-month warranty). The Ocean Guardian Standard Warranty is provided by Ocean Guardian Ltd (ABN 87 099 782 091), Building 7, 1 Winton Road, Joondalup, 6027 Western Australia.

GENERAL TERMS AND CONDITIONS

1.1 The benefits given to you in Ocean Guardian's Standard Warranty are in addition to other rights and remedies you have under law in relation to the products to which Ocean Guardian's Standard Warranty relates. Ocean Guardian products come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the products repaired or replaced if the products fail to be of acceptable quality and the failure does not amount to a major failure.

1.2 Subject to section 1.1 and the terms below, as your Standard Warranty Ocean Guardian agrees to repair or replace at Ocean Guardian's cost the Ocean Guardian product, and any Ocean Guardian accessory supplied with the product, purchased by you in Australia or New Zealand from an Ocean Guardian Authorized Dealer when the product does not perform in accordance with the manufacturer's specifications during the Warranty Term specified for the product below, commencing from the date of purchase.

1.3 To make a claim under the Standard Warranty you will need to:

- (a). Contact Ocean Guardian to register your claim and provide the details to enable Ocean Guardian to assess the claim. Or visit the Ocean Guardian support section located on the internet, contact details listed below.
- (b). Provide or make the product available to Ocean Guardian or an Ocean Guardian Authorized Service Centre as set out in the below or as otherwise agreed with Ocean Guardian. If you are required to return the product to an Ocean Guardian Authorized Service Centre, Ocean Guardian will provide details of the centre to you.
- (c). Please note, you will need to submit proof of purchase (e.g. bill of sale, invoice or purchase receipt) with your claim.

1.4 Products presented for repair may be replaced by refurbished products of the same type rather than being repaired. Refurbished parts may be used to repair the products. Replacement of the product or a part does not extend or restart the Warranty Term.

1.5 If the product presented for repair is capable of retaining user-generated data, you are advised that repair of the product may result in loss of the data.

1.6 The product will be at the owner's risk whilst in transit to and from the Ocean Guardian Authorized Service Centre, unless transported by Ocean Guardian or its Authorized representatives.

1.8 Ocean Guardian and its Authorized Service Centers may seek reimbursement of any costs incurred by them when the product is found to be in good working order.

GENERAL EXCLUSIONS AND LIMITATIONS

2.0 To the full extent permitted by law, but subject always to 1.1, the Standard Warranty will not apply:

2.1 If the product has not been installed, operated, maintained or used in accordance with the manufacturer's instructions or specifications provided with the product.

2.2 Ocean Guardian disclaims liability for range, coverage, or operation of the Product and ancillary equipment as a whole under this warranty. Ocean Guardian reserves the right to make changes or improvements in Products, during subsequent production, without incurring the obligation to install such changes or improvements on previously manufactured Products.

2.3 If the factory-applied serial number has been altered or removed from the product.

2.4 To damage, malfunction or failure resulting from alterations, accident, misuse, abuse, fire, liquid spillage, mis-adjustment of customer controls, use on an incorrect voltage, power surges and dips, thunderstorm activity, acts of God, voltage supply problems, tampering or unauthorized repairs by any persons, use of defective or incompatible accessories, the operation of a computer virus of any kind, exposure to abnormally corrosive conditions or entry by any insect, vermin or foreign object in the product.

2.5 To damage arising during transportation, installation or while moving the product, or to any transportation costs of the product or any parts thereof to and from the owner, unless otherwise specified in these warranty terms.

2.6 To any third-party software or hardware not contained in the product as originally configured by the manufacturer.

2.7 To any failure, to the extent that the failure is not a failure of the product to perform in accordance with its specifications.

2.8 To service of any product whilst it is outside Australia and New Zealand.

2.9 To any wear and tear including to antenna assembly if the product is used in commercial, industrial, educational or rental applications.

3.0 To the full extent permitted by law but subject always to section 1.1:

3.1 Ocean Guardian will not be liable for any loss, damage or alterations to (1) third party hardware or software; or (2) programs, data or information stored on any media or any part of the product, no matter how occurring; or for any loss or damage arising from loss of use, loss of profits or revenue, or for any resulting indirect or consequential loss or damage.

All Ocean Guardian electronic products have a 1-year warranty (excludes accessories like Tail Pad / Decal Antennas which have a 3-month warranty). For service, return your product to Ocean Guardian or your local Retailer Service Centre.

11 Accessories

<p>Part number: FRSS-OOA</p> 	<p>Ocean Guardian FREEDOM+ Transferable Power Module</p> <p>Powers the scientifically designed antennas that generate our proven protective shark deterrent E-field. Includes FREEDOM+ Power Module and Charging Dock.</p>
<p>Part number: SUOE-SBA</p> 	<p>Ocean Guardian / Ocean & Earth Tail Pad</p> <p>Ocean & Earth Tail Pad for additional boards.. Includes Tail Pad Kicker Support.</p>
<p>Part number: FRSS-DSA</p> 	<p>FREEDOM+ Charging Dock</p> <p>12VDC Charging Dock for the FREEDOM+ Power Module, recharges the FREEDOM+ in under two hours. Includes international power adapter.</p>
<p>Part number: FRSS-CCA</p> 	<p>FREEDOM+ 12VDC Car/Boat Charger</p> <p>Connects to the FREEDOM+ Docking Station for charging the FREEDOM+ Power Module from a 12VDC supply for use in cars and boats.</p>
<p>Part number: SUOE-CKA</p> 	<p>Decal Antenna E-field Control Kit</p> <p>The decal antenna E-field control kit provides stickers to cover the decal electrodes to reduce the power output for those more sensitive to electrical fields. Reduces the E-field by 25%, 50% or 75% depending on which sticker is used. (reduces product's effectiveness)</p>
<p>Part number: SUOE-KSA</p> 	<p>Ocean & Earth Tail Pad Kicker Support</p> <p>Supports the kicker area when the FREEDOM+ Surf Transferable Power Module is not installed.</p>

<p>Part number: NSN 4220/661582994</p>  A black rectangular electronic device with two red cables and one black cable attached to it.	<p>Ocean Guardian Tester Ensure your FREEDOM+ is in perfect working order at all times.</p>
<p>Part number: WASS-03A</p>  A circular gold seal with a blue center containing the number '3'. The text 'WARRANTY' is written below the seal.	<p>Additional 2 Year Extended Warranty Extend the standard One Year Warranty on your FREEDOM+ to a Three Year Warranty. (excludes accessories)</p>