



## VTracker Instruction Manual NAVT-01

### Thank You!

Thank you for choosing Nautic Alert® VTracker. Proudly engineered and assembled in the USA. We are confident your new purchase will provide an outstanding experience of edge-based *precision engineered technology*. Please take a few minutes to read through the instruction manual and familiarize yourself with the installation and setup process.

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## Technical Specifications

### Electrical Specifications:

DC Input Voltage: 6-37V

Backup DC Input Voltages: 6-37V

Nominal Current: 60mA (12V), does not include switch output or 12V output

Alarm Terminals: 12V

12V Regulated Output: 500mA max including switch output

**Operating Current:** 60mA

**Operating Temperature:** -20 to 60C

**Enclosure:** IP67 when cable glands properly sealed

Follow ABYC installation standards

Incorrect wiring may damage VTracker or external devices and voids warranty

## Product Labeling Requirements

Device Contains FCC ID: Q639603

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interferences, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The cellular and/or satellite antenna must be located at a distance greater than 20cm from the device and any persons under normal operating conditions to be compliant with FCC SAR limits.

## Quick Start Guide

In order to start using your VTracker, the following minimal steps are necessary:

- 1) Connect the included GPS and Iridium antennas to VTracker's antenna jacks
- 2) Connect VTracker's primary DC power input to a DC battery source
- 3) Verify [status LEDs](#) meet signal strength requirements in preliminary mounting location
- 4) Mount VTracker and antennas
- 5) Activate VTracker by going to <https://www.nauticalert.com> and click on Activate Nautic Alert in the menu. You will be required to enter the modem IMEI present on the [modem label](#).
- 6) Activation process can take 12-48 hours
- 7) Go to [www.nauticalert.com](http://www.nauticalert.com) and create an account to access VTracker and get the cellular number assigned to VTracker for sending remote text commands and automatically enable email notifications.
- 8) Download the Nautic Alert Mobile App from the Apple or Android stores, and use your login from step 7 to enable global push notifications automatically.

## Reporting Services

A Nautic Alert reporting service is required for device communications and alerts to be received. Currently, three reporting service options are available from:

<https://www.nearshorenetworks.com/menu/activate-services/nautic-alerts-activation>

### Basic Reporting Service

A basic reporting service includes vessel tracking with an automatic location update interval of one hour when moving, and up to 150 on-demand requests, which can include real-time location, arming/disarming, dc trends, and more discussed in the [Remote Access](#) section of this document.

### Enhanced Reporting Service

An enhanced reporting service includes vessel tracking with an automatic location update interval of thirty minutes when moving, global geofencing, and up to 250 on-demand requests, which can include real-time location, arming/disarming, dc trends, and more discussed in the [Remote Access](#) section of this document.

### Global Geofencing

With global geofencing, multiple geofence boundaries can be drawn on a Google Map interface on the [Nautic Alert Mobile App](#), and the geofence data will upload and sync with the device making it fully aware of the boundaries. This makes it possible for VTracker to notify in real time when entering or exiting a geofence boundary, including the name of the boundary. See the [Global Geofencing](#) section below for additional info.

## Cloud Watch Reporting Service

A Cloud Watch reporting service is available for the ultimate anti-theft detection, which provides the same as the Enhanced Reporting service, with a 15 minute check-in/location update interval, plus the following:

### Anti-Theft

With Cloud Watch, the update interval is 15 minutes, and communication inactivity will be detected and notified. In addition, GPS disconnect events will also send notifications.

### Vessel-Track Reconstruction

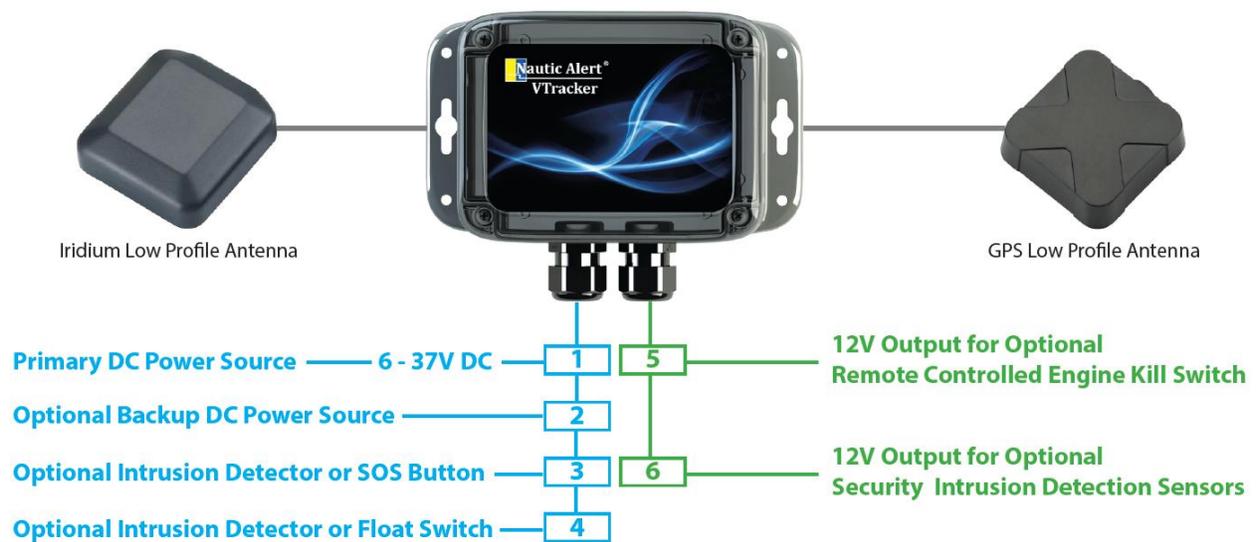
If the communications antenna is intentionally removed, and the device cannot communicate, it will continue to store time-stamped location data, and then reconstruct the previous tracks once communications is restored.

**Cloud Watch requires the optional high-performance antennas to be installed at the highest location of the vessel, and not subject to external obstructions or beneath fiberglass surfaces, which could otherwise create intermittent satellite communication delays and alerts.**

## VTracker Overview

Nautic Alert VTracker™ tracks the location of your boat or yacht in real-time with unmatched precision. Using the award-winning Nautic Alert SMART geofence technology, it will learn and detect the location and a change to the location in as little as 250 ft with the included low profile antennas, or 50 ft. with the optional performance antennas using an onboard self-aware geofence, rather than a web-based geofence. VTracker also provides anchor alarm capability, while meeting or exceeding insurance requirements.

With the secured Nautic Alert Cloud™, you can connect directly to your onboard VTracker using the Iridium® NEXT global satellite network and request on-demand location information, receive automatic location updates and other information, at any time from your mobile or web enabled devices.

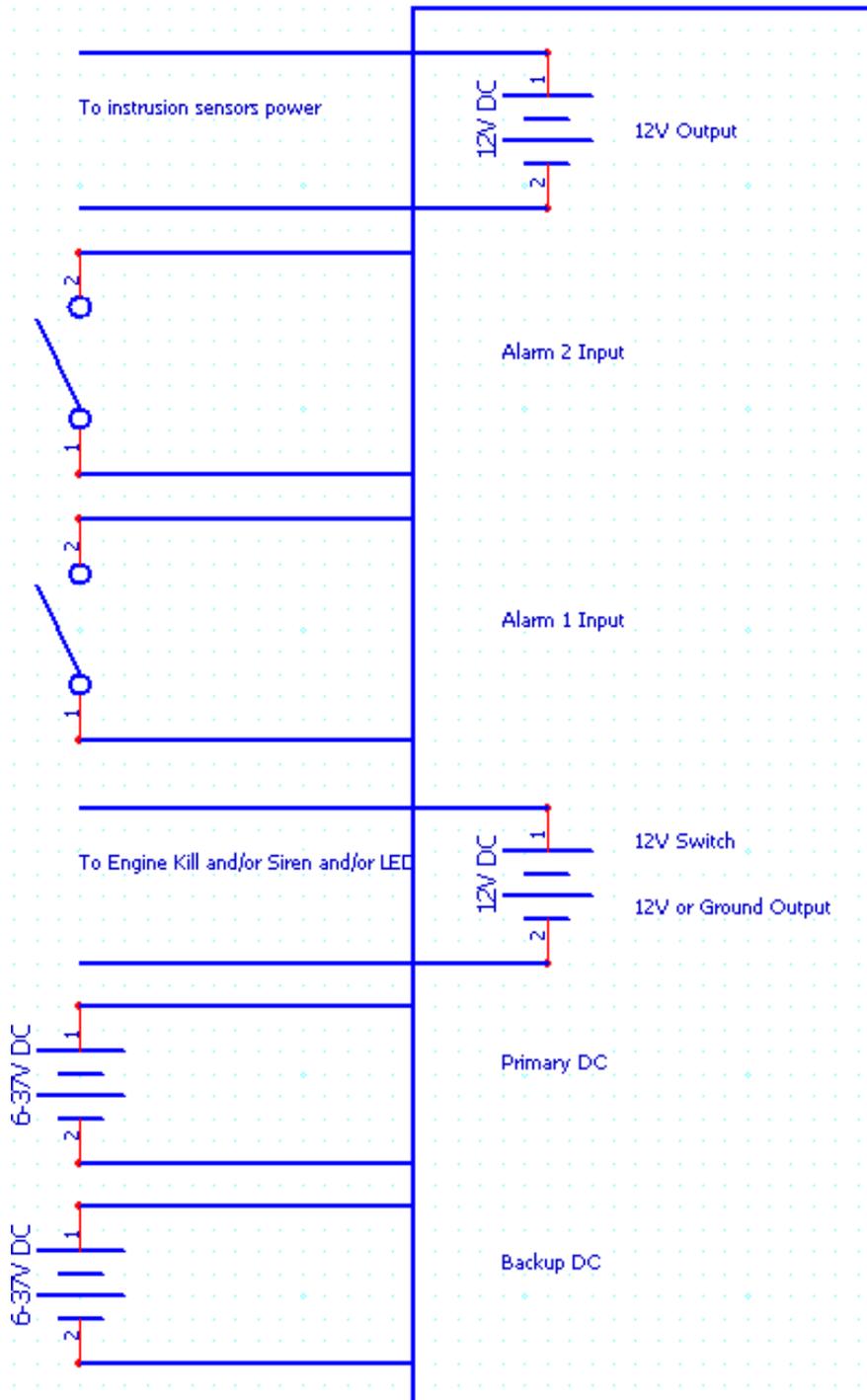


VTracker optional capabilities provide a set of dedicated input and output ports for a backup battery to enable full fault-redundancy and notifications of primary battery loss, for intrusion detection sensors and/ or SOS button for security or safety notifications and / or a localized switch for arming/disarming the build-in geofence, for a float switch and high water notifications, and for a remotely controlled engine kill switch or a switch to turn on an air conditioner, and more.

A dedicated momentary switch can be used for either SOS functionality or to arm and disarm the geofence locally, allowing for the 12V output to indicate the armed state or SOS state of the device. In this mode, the 12V switch output is not remotely controlled and used for other purposes.

VTracker can be installed easily and communicates through most fiberglass and composite hulls with the included low profile antennas. Integrated push buttons and LEDs offer a quick setup and ability to test features during installation without requiring live connectivity. Optional high performance antennas and LMR cables are also available as alternative options to the included low profile antennas, and are highly recommended for the best experience.

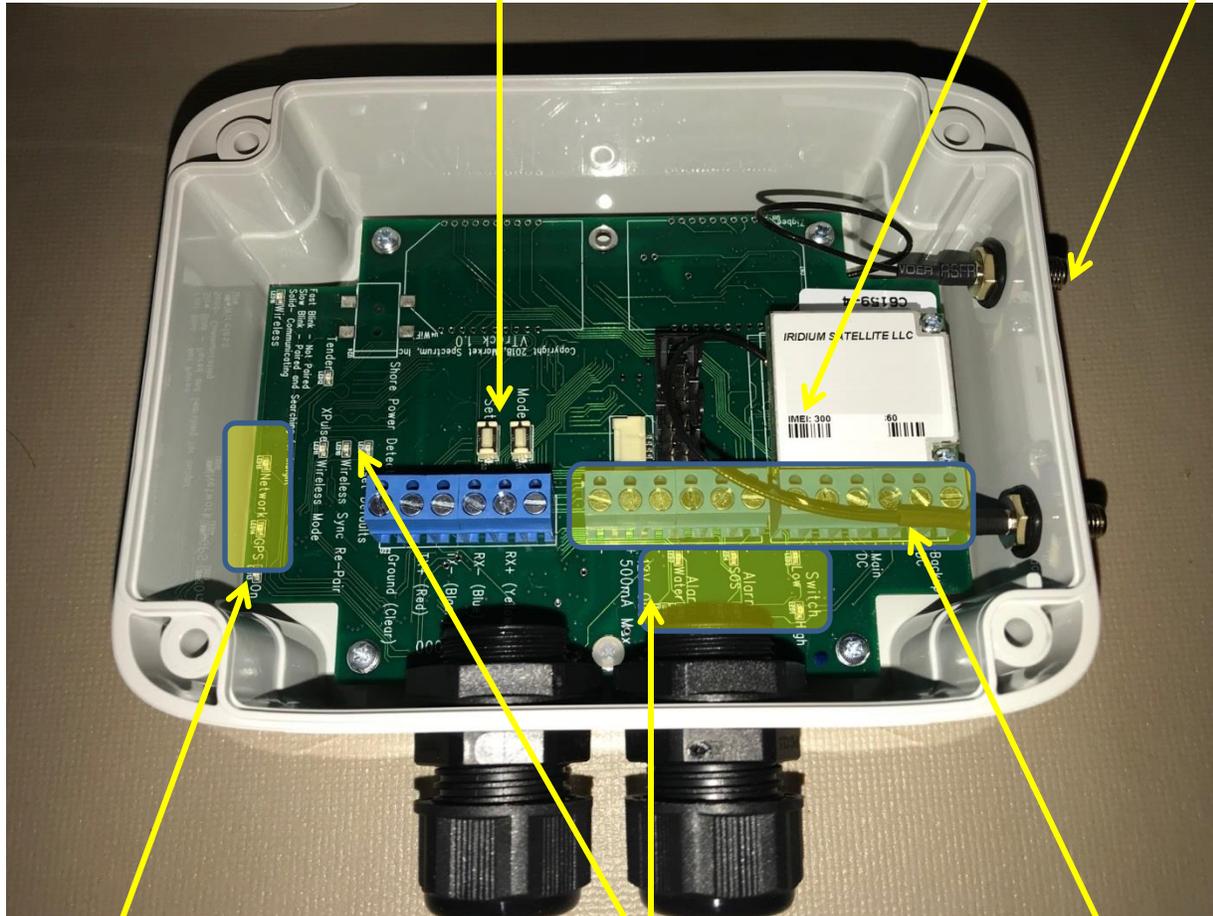
# VTracker Sample Schematic Reference



# Mode/Set Configuration Buttons Modem IMEI

VTracker Installer Details

GPS Antenna



Status LEDs

Configuration LEDs

Block Terminals

Block Terminal Pinout

12V Output		Zone 2		Zone 1		12V Switch		Primary Batt		Backup Batt	
+	-	+	Com (-)	+	Com (-)	-	+	-	+	-	+

## Cable Glands

All cable glands must be properly sealed to prevent water ingress and preserve the IP67 enclosure rating. If a cable gland is not used, a short cylindrical stopper is recommended. Otherwise, a small amount of non-conductive silicone adhesive can be used around the cable at the point where the glands tighten down from the outside of the enclosure.

## Antenna Placement

The included low-profile antennas can be placed under most decks or externally, however, the included Iridium antenna cable length is only about 3 feet, whereas the included GPS cable length is approximately 10 feet. The included antenna cabling is more easily susceptible to nearby electrical interference, and thus, should be kept away from any power or signal cables. In addition, nearby large extremities should be avoided, including solar panels.

A good mounting location can include under the bow deck, in T-Top ceiling compartments, and in cabins where the antennas can be mounted beneath the deck walkways, but connectivity should always be evaluated with [the Status LEDs](#).

If additional length, external mounting, or better shielding is wanted, the optional high-performance low-profile antennas and shielded LMR cables should be used. While the included low-profile antennas are ideal for covert installs, the optional compact high-performance antennas can also be installed under the deck/lockers, flush mounted, mast mounted, and more, as shown below.



## Hardware Options/Modes of Operation

A dedicated 12V output terminal can be used to power sensors that interconnect to alarm Inputs 1 and 2, if required. Max current from this onboard regulator is shared with the 12V switch output.

Sensors used for alarm Inputs 1 and 2 can be any 12V tolerant normally open or normally closed sensors, including, but not limited to the following:

Product Name	12V Required	NO/NC
Outdoor Wired Microwave Motion Sensor	Yes	NO or NC
Indoor Wired Microwave Motion Sensor	Yes	NC
Outdoor FLIR Perimeter Human Detection	Yes, External	NO
Indoor Wired Contacts	No	NO or NC
High Water Float	No	NO
Push Button With Integrated LED, SOS, Geo Arm	Switch	NO
Beam Sensor	Yes	NO or NC

Sensor manuals are available from: <https://nauticalert.com/support/instruction-manuals/>

Alarm inputs can be driven by standard Form C relay outputs, so any external device capable of driving a relay can be interfaced with VTracker's alarm inputs, either directly if electrically compatible, or through a Form C relay.

If normally open sensors are used, multiple sensors can be wired in parallel and connected to an alarm input. If normally closed sensors are used, multiple can be wired in series and connected to an alarm input. In either case, any one sensor can trigger the alarm interface at a time.

If alarm input 1 is configured as an SOS input or Geofence arm/disarm control, the 12V switch must be used with a visual/audible indicator to indicate when the SOS or geofence is active. In this case, the 12V switch cannot be remotely controlled or used as an engine kill. If alarm input 1 is configured as a zone input, then the 12V switch can be remotely controlled and used as an engine kill or to control any 12V tolerant device or relay.

Alarm Configurations:

Alarm 1	Zone	SOS	Geofence
Alarm 2	Zone/Water	Zone/Water	N/A
12V Switch Output	Remotely Controlled	SOS Active Indicator	Geofence Active Ind

## Alarm Event Latching

Alarms and notifications will be latched and sent as follows:

Zone- Latched if VTracker is in an armed state only

Water- Latched in all cases

SOS or Geofence Arm/Disarm- Latched in all cases, but requires a 2.5 second assertion to activate, and a subsequent 2.5 second assertion will clear and cancel the SOS or disarm the geofence.

## Status LEDs and Mode/Set Buttons

Status LEDs shown above provide instant visual confirmation for the following:

- ON- Lights solid once the system has booted and is operational.
  - o Will not light if incoming DC voltage is insufficient, to prevent hardware stress in the event of DC power brownouts or blackouts
- NETWORK- Blinks at a duty cycle proportional to the Iridium Satellite signal strength
  - o Stays solid when two-way communications is possible
  - o Indicator does not require customer activation of the system
  - o Normal for a solid LED to only occur once a minute, and last for about 10-30 seconds at a time
  - o If a solid LED does not occur once per minute, try repositioning the antenna
  - o In some cases, the use of the optional high-performance antennas mounted outside or at a higher elevation may be required
  - o Avoid antenna placement beneath carbon-fiber decks, near solar panels, with nearby obstructions to the sky, and inside of tinted windows
- GPS- Blinks at a duty cycle proportional to the GPS signal strength
  - o Stays solid when an excellent signal and 3D fix is acquired
  - o Signal may take up to 5 minutes to fully acquire, but should remain solid all the time
  - o In some cases, the use of the optional high-performance antennas mounted outside or at a higher elevation may be required
  - o Avoid antenna placement beneath carbon-fiber decks, near solar panels, with nearby obstructions to the sky, and inside of tinted windows

**The mode/set buttons provide a simple installer interface for quickly setting up VTracker alarm input types and verifying sensor inputs, switch output functions, and antenna placement without the need for any remote connectivity or for the system to be in a live state.**

## Mode/Set Buttons and Zone Configuration Settings

VTracker contains two zone inputs, which can be configured as follows by using the “Mode” and “Set” button interface:

- SWITCH- Toggles the switch output between On and Off
- ALARM 1- Toggles between Zone Normally Open, Zone Normally Closed, SOS, and geofence arm/disarm control (indicated by both the “Zone” and “SOS” LEDs being active)
- ALARM 1 ACTIVE - Resets the alarm if it has been latched
  - o Setting is only accessible if the alarm has been latched
- ALARM 2- Toggles between Zone Normally Open, Zone Normally Closed, and Water (high water float)
- ALARM 2 ACTIVE- Resets the alarm if it has been latched
  - o Setting is only accessible if the alarm has been latched
- RESET DEFAULTS- Resets defaults for switch output, alarm input types, and latched alarm states
  - o Setting this takes about 30 seconds to complete, followed by a system reset

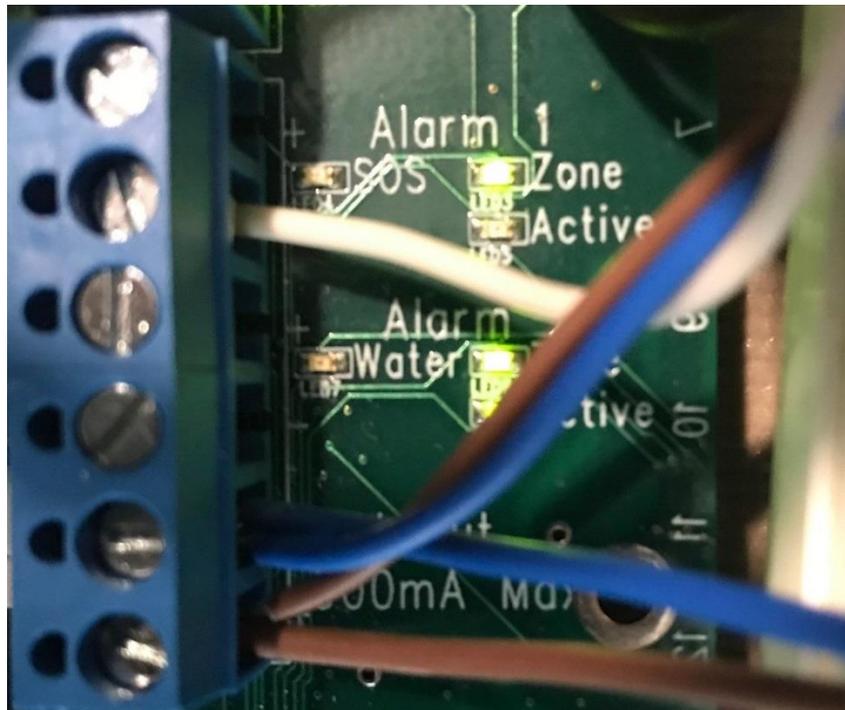
## Configuring and Testing Zones

When configuring and testing zones, it is recommended to disconnect the antenna first to prevent against any accidental notifications, especially SOS events, unless live testing is desired. Monthly live testing is recommended, and third parties receiving notifications should be notified in advance and in accordance with 3<sup>rd</sup> party monitoring agreements.

If using a “Zone” alarm type, opening and closing the connected sensor/button/switch will update the corresponding zone’s “Active” LED, if the system is disarmed. The system can be forced into a disarmed state by resetting defaults.

## Beam Sensor Wiring

The following image shows a typical wiring pattern for a single beam sensor. In this case, the brown wires from the emitter and receiver are wired to 12V, the brown wires to ground, and the white wire to the zone's + input.



With a Nautic Alert beam sensor, setup is a breeze and does not require any complex calibrations. In the configuration shown above, when the beam sensor emitter and receiver are facing one another, the zone active light is not illuminated. A loss of the beam pattern from the emitter will cause a zone activation.

## Power Inputs and Battery Monitoring/Trending

VTracker will send low voltage and critical voltage notifications by default. In order to receive such notifications in the event of a total battery loss, a backup battery must be installed and connected to the backup battery input.

Battery properties, voltage thresholds, and notification settings can be modified on the [Nautic Alert Mobile App](#).

## Remote Engine Kill

If alarm input 1 is not designated as an SOS or geofence control type zone, the switch output can be remotely controlled to provide a 12V control signal. See the [Remote Access](#) Section for more information on how to remotely turn this switch on and off. This feature can be used for a remote engine kill or any other custom control solution.

When using the switch for remote engine kill, a certified installer can survey the boat and recommend the best practice for implementing this feature. Depending on the setup, common ways for connecting this signal could be through a 12V solenoid valve on the fuel line, through the ignition wiring, or via a readily available 12V input.

Other use cases for this switch can include custom solutions, such as interfacing an existing MOB system to an SOS zone input, controlling a CZone input, or controlling some other on board peripheral.

User must ensure this feature is used responsibly, and assumes all liability as discussed in the [Terms and Conditions](#).

## High-Water Monitoring

When alarm input 2 is configured as a water zone, one or more float switches can be connected directly to the terminal inputs. In this configuration, the float switch must be used standalone, and cannot be driven by an external voltage source, or damage will occur.

A high-water notification will be sent out regardless of the arming state of VTracker, if a previous sensor activation has not been previously latched. See the [Remote Access](#) section for more information on how to arm and disarm the system, and clear latched alarms.

## Alarm/Security Monitoring

When an alarm input is configured as a zone type, notifications of a sensor activation will only be sent if the system is armed and the alarm has not already latched a previous activation while being armed. See the [Remote Access](#) section for more information on how to arm/disarm, and clear latched alarms.

## SOS

When alarm input 1 is configured as an SOS zone, the switch output must be connected to an audible/visual indicator so the user knows when the interface has been activated. The switch output will be on when the interface is active.

The SOS interface is activated with a 2.5 second closure of an attached button, and is cancelled with a subsequent 2.5 second closure of the button.

When an SOS event occurs, an SOS message is sent to the owner of the VTracker, and all users that have been added via the [Nautic Alert Web Portal](#). In addition, and optionally, GEOS can be notified for global search-and-rescue if a GEOS subscription is active and has been purchased.

**Testing with GEOS is also possible and periodically recommended. It is necessary for the customer to contact GEOS directly prior to any live testing.**

**Testing must be performed by customers in accordance with the terms and conditions set forth in the Nautic Alert Web Portal GEOS registration procedures.**

## Geofence Control

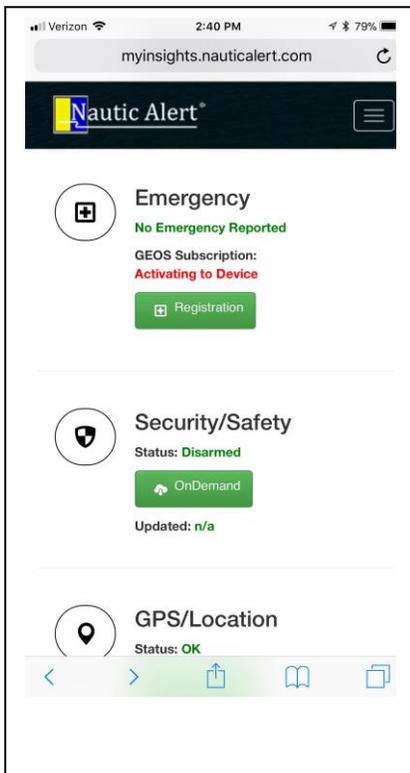
When alarm input 1 is configured as an geofence control zone, the switch output must be connected to an audible/visual indicator so the user knows when the interface has been activated. The switch output will be on when the geofence is active. This mode is useful if the boat will be used in remote locations where the mobile app cannot be used to arm/disarm the geofence remotely. In this case, a hidden or discrete momentary button or keyed-momentary button can be used to control the arming state of the geofence.

## GEOS Reference

GEOS Global Emergency and Response monitoring subscriptions are available at [www.nauticalert.com](http://www.nauticalert.com), and enable SOS emergency reporting from Insight and connected [MOB devices](#).

Initially, the emergency subscription will show inactive on the Nautic Alert Web Portal. The administrator is responsible for entering required device registration information in the Nautic Alert Web Portal, see [Nautic Alert Web Portal](#). See [Admin and Additional Users](#) section for more info on administrator roles.

The customer must ensure the emergency subscription displays “Active” in the device Emergency category on the Nautic Alert Web Portal after completing the registration procedures. The registration button below will only be visible if the user is an administrator of the system and a GEOS subscription has been purchased.



## Activating VTracker and Remote Access

- 1) To activate VTracker, the IMEI of the satellite modem must be referenced, as shown on the [satellite modem](#) when the cover of VTracker is removed, as well as on the product box and enclosure.
- 2) Next, simply go to <https://www.nauticalert.com> and click on the Activate Nautic Alert in the menu. **The activation process typically takes 12-48 hours.**
- 3) When the activation process is complete, go to <https://portal.nauticalert.com> and login or create an account if you do not already have one. You can also reach this link by going to [www.nauticalert.com](http://www.nauticalert.com) then clicking on “login”. Once logged in, your device will show up automatically, and you’ll have instant access to remote SMS text message commands from your phone via the gateway number shown in the device details.

**The Nautic Alert Web Portal must be used to create a user account before the Nautic Alert Mobile App can be used.**

There are two ways to remotely access a VTracker. A cellular number is assigned to each VTracker, allowing direct text messaging (sms) access from user’s phone with simple text commands. In addition to this, the Nautic Alert Mobile App provides a more feature rich experience for charts and visualizations.

The cellular numbers assigned to your VTracker can be viewed from the device info in the Nautic Alert Web Portal or the Nautic Alert Mobile App.

Text messaging is only available in the US. It is strongly recommended to create an account and login to the Nautic Alert Mobile App to automatically enable global push notifications and email alerts.

## Remote Text Message Access

VTracker information can be seen and modified via the Nautic Alert Mobile App, or via text message commands. The following is a list of text message commands supported:

- “?” Displays list of commands available
- “Alerts on” enables sending alerts
- “Alerts off” disables sending alerts
- “Arm” Arms system, resets latched alarms, sets geofence to current position
- “Disarm” Disarms system, resets latched alarm
- “Clear” Clears latched alarms
- “Map” Returns Google Maps link to on-demand current location
- “GPS” Returns on-demand coordinates, heading, and speed
- “Geofence” Returns on-demand geofence status and drift distance
  - “Geofence Reset” – resets current center point of geofence
  - “Geofence set 50” —sets geofence radius to 50’. Minimum radius of 250 is recommended for stock antennas, 50’ is possible with high-performance antennas mounted properly externally and free of obstructions.
  - “Geofence on”—enables the geofence and resets the center point if the geofence is currently disabled
  - “Geofence off”—disables the geofence
- “Status” Returns on-demand system status summary
- “DC” Returns on-demand voltage from primary battery
- “Switch on” - turns switch on if zone 1 is not setup as an SOS type
- “Switch off” - turns switch off if zone 1 is not setup as an SOS type

## Admin and Additional Users

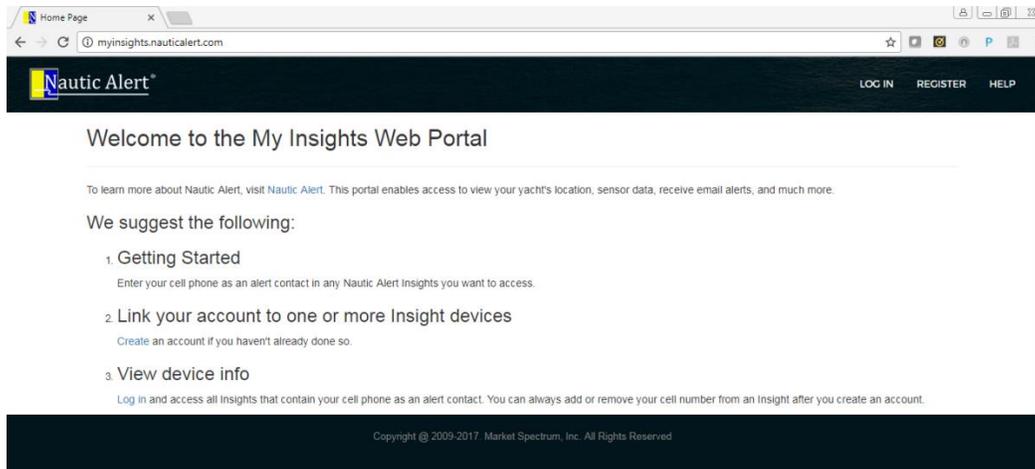
The cell number of the owner provided when activating VTracker is considered the system administrator. Additional users can be added via the Nautic Alert Mobile App system info Device Info category.

Users also have remote access to the system, but do not receive Cloud Watch anti-theft notifications or Global Geofencing notifications as discussed in the [Cloud Watch Reporting Service](#) section and below.

## Nautic Alert Web Portal

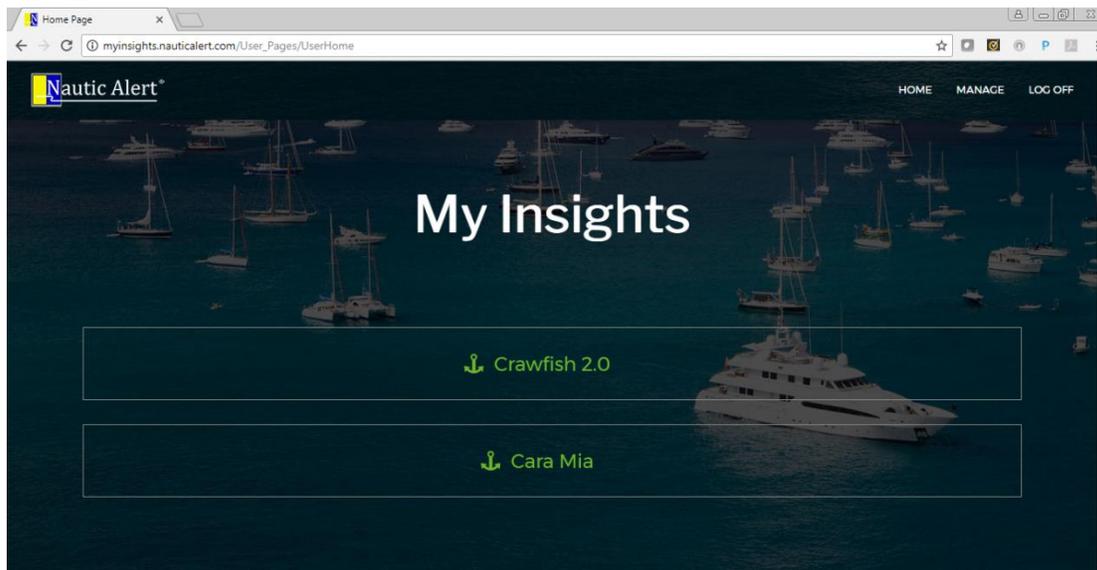
The web portal should be used to create and manage user accounts. The web portal can also be used to display sensor data on demand, view vessel tracking data, and events, from any web-enabled phone, tablet, or PC, however, the [Nautic Alert Mobile App](#) provides more up-to-date features.

To access the Nautic Alert Web Portal, go to [www.nauticalert.com](http://www.nauticalert.com), then click login at the top, or go to [portal.nauticalert.com](http://portal.nauticalert.com).



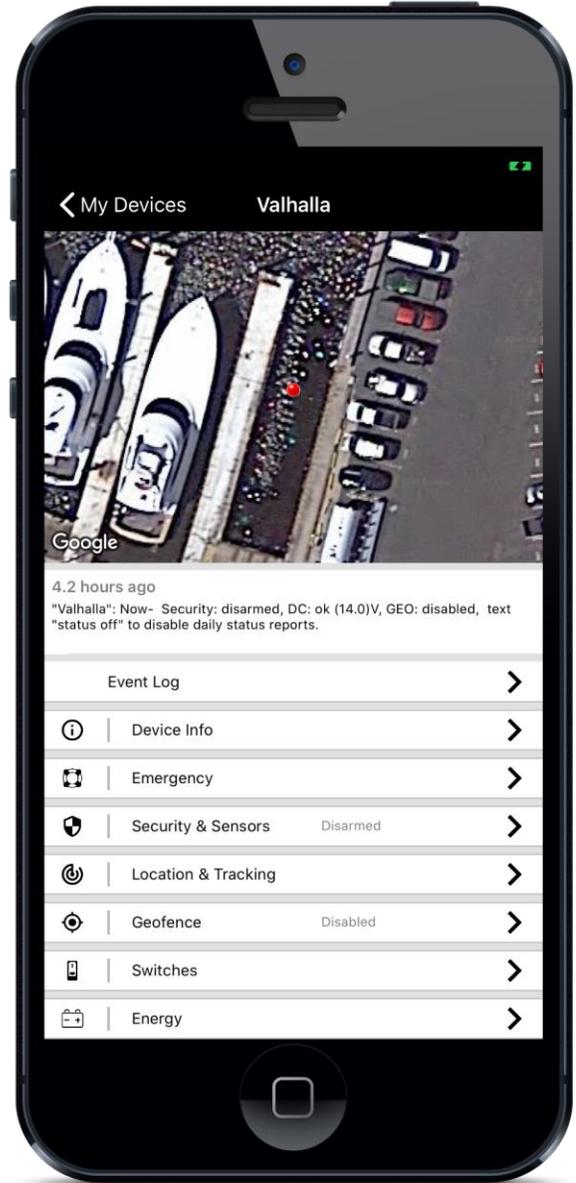
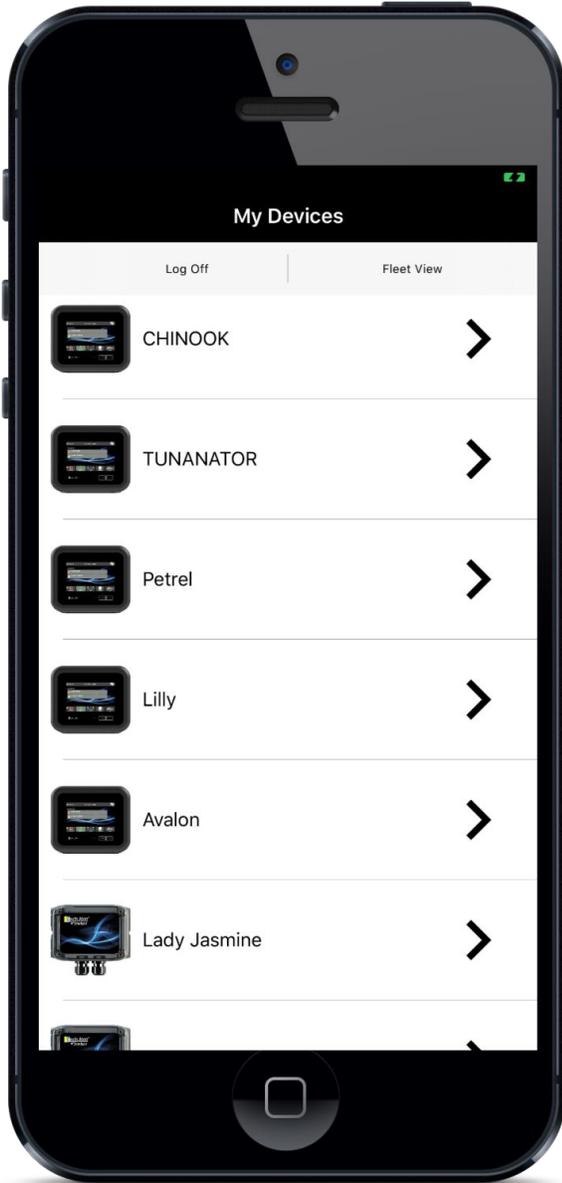
Before creating an account, ensure that your cell number is present in an Insight's alert contact list.

When logging in, all devices that contain your cell phone will show up in real-time.



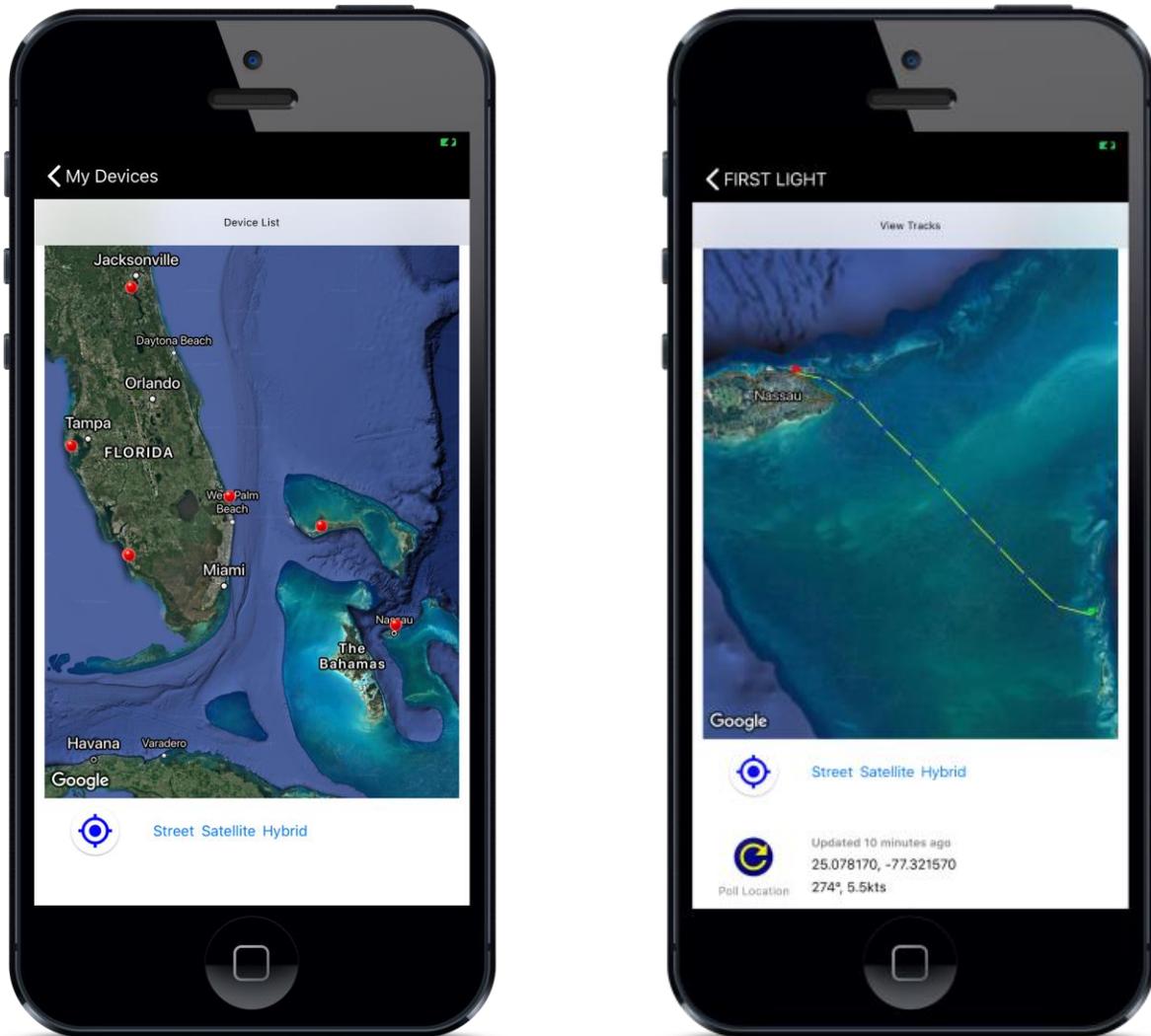
## Nautic Alert Mobile App

Once an account is created, the Nautic Alert Mobile App can be used for remote management of your device, including fleet view for seeing all of your devices and much more.



## Vessel Tracking

The Nautic Alert Mobile App provides the easiest experience for current vessel location, automatic route playback, and fleet management.



From the device view, all devices can be viewed in the fleet view by selecting “Fleet View” from the toolbar.

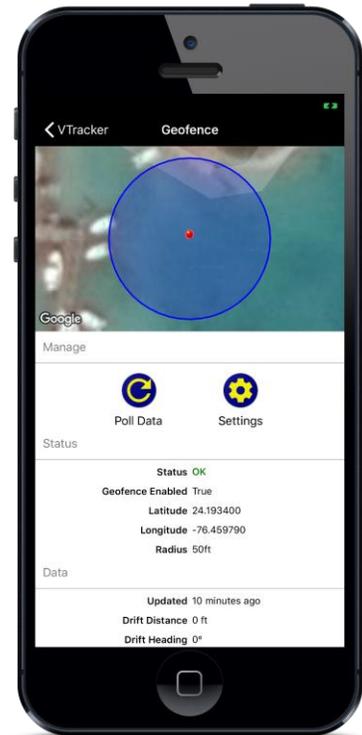
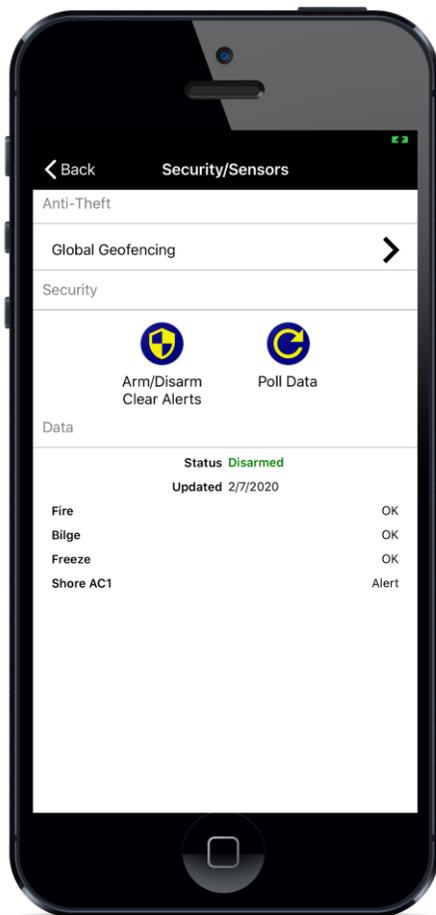
To view individual tracks, the device location application can be selected. All routes are automatically calculated and displayed from the “View Tracks” toolbar selection. Each waypoint in a route can display additional information by pressing on that waypoint on the map.

## Geofence/Anchor Alarm/Global Geofencing

VTracker's high-precision ultra-reliable anchor alarm/geofence can be set to as little as 50 feet, and intelligently auto adjusts as the signal degrades to prevent false alerts, where other products show movement. In addition, an optional Cloud Watch subscription enables fail-safe detection of a compromised system, notifying in minutes of an intentional communications jamming or removal attempt.

VTracker's built-in geofence/anchor alarm is available for all subscription levels.

The geofence radius can be adjusted via the geofence settings button shown here.

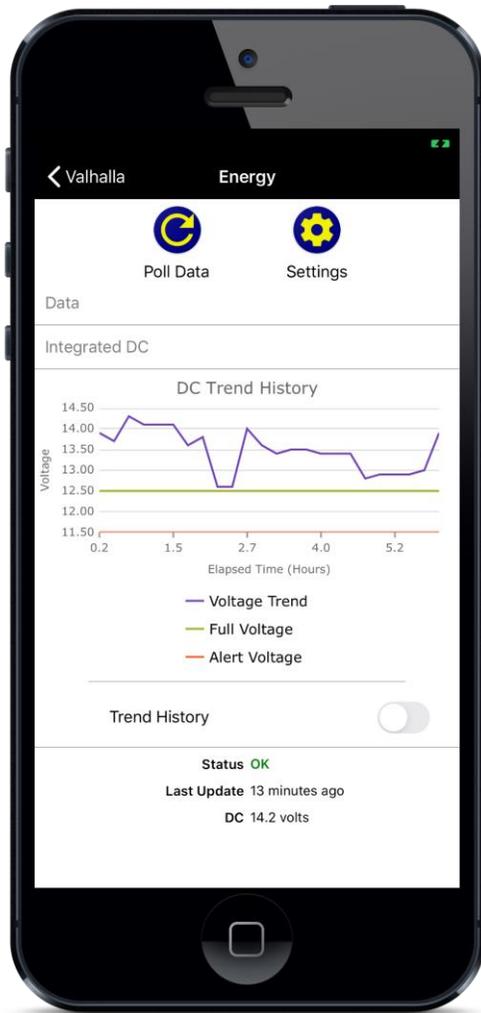


Global Geofencing is a separate feature useful for managing fleet movement, where the owner needs to be notified when a device goes in or out of a geofence boundary. This feature can be accessed from the security, Anti-Theft, Global Geofence setting, and requires an Enhanced subscription.

This application allows the owner of a vessel to setup multiple geofence boundaries on a map. This geofence data uploads to the device, meaning it can notify in real-time without any dependency on vessel tracking data and increased data usage.

Global geofence alerts are only sent to the device administrator.

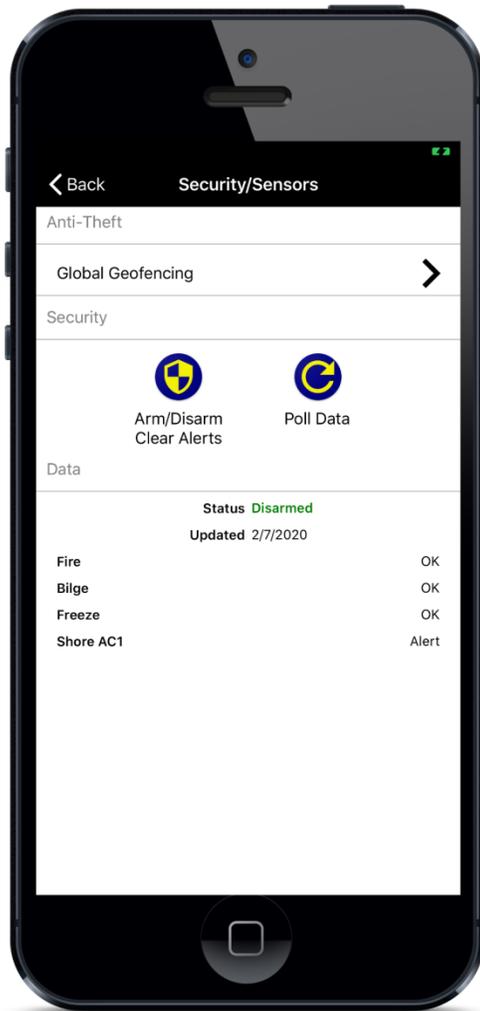
## DC Monitoring/Trending



VTracker's ultra-low power design draws 60mA on 12V, enabling it to be used 24/7/365 for months of continuous operation on a single house bank. A custom backup battery can easily be added for power redundancy, and Nautic Alert's mobile DC chart interface allows for visualized representations of battery trickle charge health and alerts.

Battery bank monitoring can be enabled or disabled from the energy settings.

## Security Management



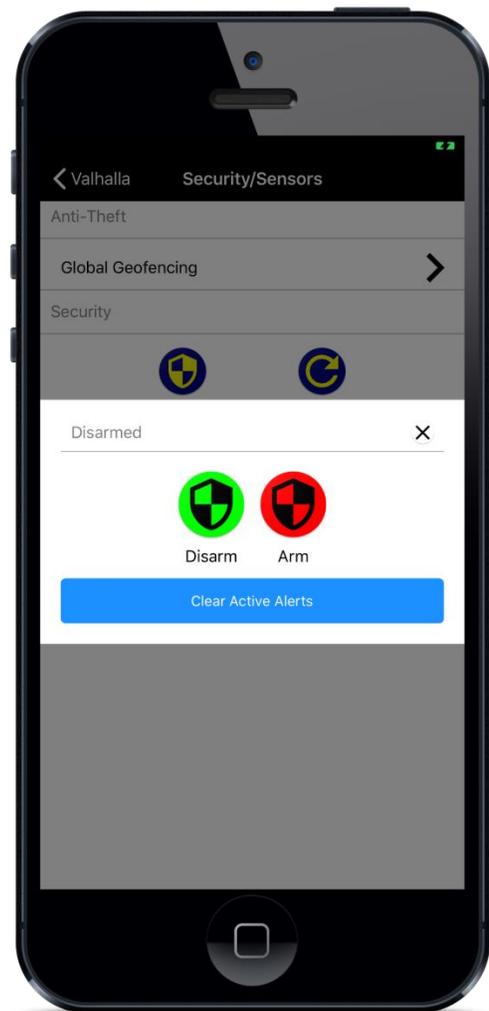
Once an alarm is present, it is necessary to clear the active alert or re-arm VTracker for subsequent alarm events to occur.

High-water and emergency events will send regardless of the system armed state.

By default, arming VTracker will also arm the geofene. To change this, modify the system settings under the Device Info category.

VTracker's dual zones will display under the security category of the mobile app, which will include status for intrusion and high-water depending on the configuration being used.

If a zone is being used for intrusion, it is necessary to arm VTracker first as shown below.



## Remote Engine Kill/ Switch / Emergency Interface

The remotely controlled switch, which can be used as a remote engine kill, is accessible from the switch category of the device details view.

The Emergency category can be used to view active emergencies if VTracker has been setup to use the SOS feature.

## Overages

Occasionally, and with heavy usage, monthly data overages can occur. The [Nautic Alert Web Portal](#) and [Nautic Alert Mobile App](#) provides a real-time estimate of incurred data usage.

## Terms and Conditions

Any Nautic Alert user must agree and accept all terms and conditions as outlined in the terms and conditions available at <https://nauticalert.com/terms/> and as required by optional third party subscriptions.