Atlas 2 User Manual



Welcome to the future of sailing. Built on the foundation of the award-winning Atlas, the Atlas 2 is the culmination of years of work and the cornerstone of a growing ecosystem of sensors and displays.

CURRENT VERSIONS

ATLAS 2 FIRMWARE**: 0.11.1**
VAKAROS CONNECT**: 1.9.1**

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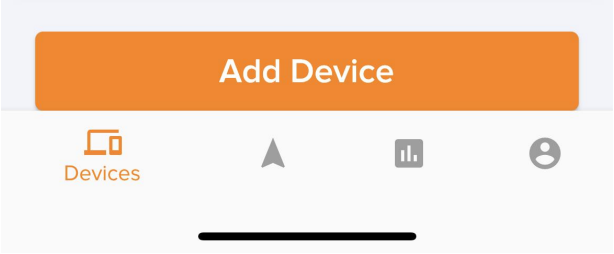
Vakaros Connect App

First things first. To get the most out of your Atlas 2, download the latest version of the Vakaros Connect App. Available for either iOS or Android, Vakaros Connect links wirelessly with your Atlas to provide access to a wide range of device settings, firmware updates, telemetry download, a live data view, and more.

This is really important; it will make sure that you have the latest software on your Atlas 2, ensuring you have all the latest features. Make sure you have Bluetooth enabled, then search for ‘vakaros connect’ in the store, or simply scan the appropriate code:

android iOS

After you get the app installed and started, Vakaros Connect will walk you through the process of connecting to your Atlas 2. If your Atlas 2 is not yet powered on (we know how hard it is to not start playing), turn it on by tapping the power button on the top right. Turning our attention back to the app, you should have an orange ‘ADD DEVICE’ button on the phone screen.



After pressing this button, a screen appears that allows you to connect to your device. The app can use Bluetooth to do this wirelessly, but the best way to do this (especially if there are other Atlas devices around) is to use your phone’s camera to scan the serial number via a built-in QR code. A quick tap on the power button brings up an about device screen like this:



Scanning this code will register your device, and also make sure it has the latest firmware. Your Atlas 2 might reboot a few times during this process; wait for the steps to finish before continuing on. We'll come back to the app, but let's get ready to dig into the Atlas 2!

We're going to focus first on some key physical parts; the display, the buttons, and the LEDs.

Atlas 2 Overview



Power:
Press and hold the Power button to turn the Atlas on or off. You'll hear a power-on sound and the LEDs progress as the Atlas 2 wakes up. To turn the Atlas off, press and hold the power button until you hear a shutdown sound and see the display go blank. While on, a short tap on the power button brings up the about device screen, tapping it again to return to the previous screen.

Speaking of power; to charge the Atlas 2 simply connect the included charging cable to a USB charger. Then attach the included charging pad to the other end. Placing the Atlas 2 on the pad automatically starts the charging process; you'll see a battery icon and a percent of charge displayed. If you don't see anything on the screen that's OK, it simply means that your Atlas 2 is 100% charged! It is recommended to charge your Atlas to full capacity at least once every 3 months.

Display & Buttons:
The info bar displays device information like Battery Level and Current Time. If the time is not showing, it simply means that the GPS/GNSS module has not yet found enough satellites. Usually taking just seconds, that process might take a few minutes if the device doesn't have a clear view of the sky, for example, while indoors. The clock also might show 24 hour GMT based-time; don't worry we can change that in settings later.

Buttons 1 - 4 are contextual and can change function based on what screen is being displayed. The button bar displays the current functions of each of the 4 buttons. The default and most common functions are: LINE, ANGLE, RESET, and START. LINE is used to set the starting marks (see Line Menu, below). ANGLE is used to set and view reference angles for tracking shifts, RESET and START control the start timer. There is often a BACK button to allow you to return directly to the previous screen.

The Home button is very important; it allows you to return to the home screen from any menu and is used to cycle through your configured layouts.

Primary Sailing Screens







Pressing the home button at the bottom of the Atlas will cycle through all of the different screens currently set up on your Atlas. Each screen is populated by widgets, which display different kinds of data. A few of the default screens that ship with the Atlas 2 are shown above. Using Vakaros Connect, you can add screens and change the existing ones to best suit your needs.

The default main screen, also designated the ‘home’ screen, has 4 widgets: Heading, Speed, Heel, and Trim. The heading widget includes a shift tracking display, with a lift/header indicator in degrees and a trend graph, both determined relative to the current reference angles, see Angle menu, below. The speed widget shows current speed in knots, as well as the max and 10 second average. The heel and trim displays show the current value in degrees and consistency bars, measuring how steady the boat has been in heel and trim. We suggest that you use this default home screen for your first few sails until you get a feel for the capabilities of the Atlas 2.

Note that via the Customizable UI feature ANY screen can be designated the ‘home’ screen, which is the screen that the Atlas 2 shows at power-up, and switches to at the end of the start sequence.

Line Screen — Start line setup



Before we dive into the dedicated start screens, let's look at gathering and recording some of the key data they will need to inform a great start. The Atlas 2 is designed to help you get a great start to any race, showing a highly accurate measure of distance to line (DTL), time to line (TTL), as well as a start timer. The first thing we need to do is capture the location of the line. Begin by pressing the LINE button to record the locations of the marks which define the starting line. This brings up the Line Screen, and dedicates buttons 1 and 2 to recording the locations of the Boat and Pin. Each time the BOAT or PIN button is pressed, the Atlas will save the current GPS coordinates as the location of that mark, replacing any previous pings. Once both marks have been recorded, the Line Menu will show additional information about the starting line, including line length (between pings) and perpendicular heading. Line bias and advantage information is displayed if shift tracking reference angles have been set, see below. Exit the Line Screen by pressing the Back button or the Home button.

Once the starting marks have been recorded, the Atlas 2 automatically displays DTL on the starting screen, measured in meters. DTL can be calculated with a bow offset, a key feature if your Atlas 2 is mounted on the mast. By setting this value in the Connect app, it allows you to 'ping' the line by simply sighting down the mast, and the Atlas 2 continuously calculates the distance from the line to the bow, no matter the orientation of the boat.

To start the countdown timer, press Start. The timer will start counting down from the default value set in the Connect app for the current profile. Minutes can be added to the timer using the +1 button. The Start button becomes Sync while the timer is running, syncing DOWN to the next whole minute. Under 1 minute to go, and the Sync button syncs UP to 1 minute. Pressing Reset will stop the countdown timer and reset it to the default value.

After the countdown timer reaches zero, the Atlas will automatically change to the home screen. The timer will continue counting up in the background, until the End button is pressed.

It is a good idea to press the End button at the finish. Along with the starting line, both the start and end of the race are recorded in the data log. As long as you remember to press End, this will save you from manually determining them later.

Graphical Starting Screen



Along with the numerical starting screen, your Atlas 2 possesses a graphical starting screen that shows a representation of your boat relative to the starting line in real time. First introduced on the original Atlas, we've taken it to the next level with the introduction of the LEDs on the Atlas 2 which can show a range of starting information. Starting is a busy time, and we want you to be able to choose the data YOU want to see to nail that start. Using the Customizable UI feature, you can choose which starting screen (numerical or graphical) is the primary or default starting screen. To give an overview of the graphical start screen, we created a short video contained in this blog entry.

Visual Time-To-Line Explanation

Angle Menu — Shift tracking and reference angles



To set up shift tracking on the Atlas, press the ANGLE button to bring up the ANGLE Menu. There are two options for setting port and starboard reference angles, an automatic method and a manual method:

1. Automatic method

Start automatic reference angle capture by pressing the AUTO button on the ANGLE menu. The Atlas will walk you through sailing a short upwind leg, recording data while you sail and determining your reference angles automatically. Follow the on-screen prompts, and in about a minute, you'll be all set to track shifts. In most conditions, this method will provide the best results, as it minimizes the impact of small oscillations and waves, while allowing the crew to sail the boat normally, without needing to interact with the Atlas once the process is started. It also records your windward VMG in current conditions, vital data for the Time To Line and Time To Burn functions to work.

2. Manual method

You can also set the Port and Starboard reference angles by pressing the corresponding PORT and STBD buttons on the ANGLE screen to record the current heading. Keep in mind that an instantaneous snapshot can introduce some error in the reference angles. Note that this method does NOT capture your windward VMG.

We recommend checking your reference angles before every race and resetting them if necessary. The ANGLE screen also shows some additional useful information, including an estimate of the wind direction (the midpoint between the Port and Starboard reference angle), the dead downwind angle, the tacking angle and average upwind speed.

LED display

The Atlas has an innovative row of 7 RGB LEDs that can be used to display key sailing/racing data, provide alerts, and also inform on RaceSense status. The following functions are available in the current firmware, and more are being developed:

- Start Timer
- Distance to Line (DTL)
- Time To Burn (TTB)
- Heel Angle (HA)
- Shift Tracking
- None (off)

These are set as part of the Custom UI Layout configuration in the Connect app. Details are below, and there is more information at the blog entry covering LEDs. The brightness of the LEDs can be adjusted from the LED menu (Display and Sound → LED)

LED Functionality Overview

Other Connect-controlled functionality

The Connect app is the control center of your Atlas experience.

Class Compliant Modes

We're excited to offer the ability to restrict certain functions of the Atlas 2 to comply with different class rules. This functionality is based in the Connect app and can be configured when creating a boat profile. It's easy to switch between profiles to go from restricted to full capabilities, and to audit what capabilities were available during a given session if there is ever any question. See our detailed blog post with a video walkthrough of setup here:

Class Compliant Setup Info

Data logging

One of the core features of the Atlas 2 is its ability to log sensor data for later review. Due to its high logging rate and wireless connectivity, the Atlas 2 has become a favorite of Olympic teams world-wide. When enabled, the Atlas 2 logs data whenever it is on. The data rate can be set from 1Hz to an industry-leading 10Hz.

A long and detailed blog entry was created to explain all of this, and can be reviewed here:

Telemetry Logging Info

Customizable User Interface

While the UI of the Atlas 2 was created by design experts and top sailors for maximum flexibility, that does not mean that it will be perfect for everyone. That's why we created the custom UI builder. This capability allows you to easily design your own screens with a graphical builder, and then publish those screens to the Atlas 2. It also allows you to add controls (we call them widgets) to the screens to support external sensors. Again we have a detailed blog entry explaining it all.

Customizable UI Info

Firmware Updates
The software that runs the Atlas 2 (known as firmware) is constantly evolving, with new features, improved algorithms, and more. Vakaros Connect will let you know when a new version is available, and walk you through the installation process. Updates are installed wirelessly on the Atlas 2, and the whole process only takes about a minute!

Backlight
The Atlas 2 has a vision-protecting red backlight, which can be enabled to turn on automatically based on the ambient light level, or manually from the Vakaros Connect app. The backlight also backlights the side buttons, and lightly backlights the LEDs (so you can see which ones are OFF, a key RaceSense feature). Backlight settings are controlled in the profile settings for your Atlas in Vakaros Connect, (Display and Sound → Backlight).

Profiles
Atlas profiles are collections of boat data and settings that can be switched as a unit. That means you can set settings for a J70 racing with a 3 minute rolling clock, and a Star using a 5 minute sequence, and save settings (like bow offset) for each. Switching is a click away.

Clock
Switch timezone, choose a 12 or 24 hour clock.

Orientation Offset
Choose between Upright Mode (default) or Prone Mode (Atlas lying flat). Correct for mounting offset in all three planes (Heel, Trim, and Yaw).

Starting Timer
Set minutes to the starting signal, and choose if the Atlas makes countdown sounds.

Bow offset
Choose to use one or not, and if yes select the distance and the units used.

Sound
Control the volume of sounds produced by the Atlas 2. (Display and Sound → Sound)

Magnetic Heading
Choose if the compass will display in degrees magnetic or true, and the dampening level.

GPS Dampening
Select the amount of dampening for both Speed over Ground (SOG) and Course Over Ground (SOG) readings.

IMU Dampening
Select the amount of dampening for both heel and trim.

Other Cool Hardware Features

Long-life Battery
When you're sailing hard, the last thing you want to have to think about is the battery in your compass. That's why we gave the Atlas 2 the longest battery life in the business, BY FAR. Over 100 hours on a wireless charge. Forget your charging pad? Use any Qi compatible charging pad, like the one you might use for your phone. And if you ever run low, you can get a full day of battery life while charging during breakfast. Even better, we sourced a battery so capable that we could design the Atlas 2 to never drain the battery to near empty, or charge fully. This scheme maximizes the battery longevity of your Atlas 2. You'll never have to worry about it. Ever.



Dual Waterproof Speakers
Often the Atlas 2 will want to get your attention when you're not looking. And the best way to do that is sound. Lots of it. So the Atlas 2 has a pair of loudspeakers built into the bottom of the case, protected by a clever waterproof membrane. Sound can get out, but water cannot get it. Volume and sounds are customizable in the Connect app, naturally. Look for more sound options in future versions of Vakaros Connect.



High Visibility Screen

The 4.4 inch (diagonal) transflective LCD screen is by far the easiest screen to read on the water. It is bonded to the latest generation Gorilla Glass outer screen for maximum protection. While small, the key to its legibility is its very high contrast ratio and high (91) pixel per inch count. By customizing the display layout, we have crews use the Atlas on boats in the 35-50 foot range. And due to its advanced technology, the brighter the sun, the easier the Atlas is to read. Sailing at night? Turn on the backlight with the Vakaros Connect app or enable automatic backlight to turn on when the ambient light drops below a user configurable leve.



Sensors

The Atlas 2 supports wireless wind, speed-through-water and depth sensors, with more sensor support in development.

Currently supported sensors:

Sensor	Supported data channels	Power source
Airmar DST810	Speed-through-water, depth, water temperature	External 12 V
Airmar DX900+	Speed-through-water, depth, water temperature	External 12 V
Calypso Ultrasonic Solar	Apparent wind speed and angle, true wind speed, angle, and direction (coming soon)	Solar cell
Calypso Ultrasonic Mini	Apparent wind speed and angle, true wind speed, angle, and direction (coming soon)	Internal battery, rechargeable

These sensors are available from Vakaros: https://vakaros.com/collections/all

Pairing a sensor with your Atlas 2:
To pair a new sensor with your Atlas 2, you'll need your Atlas, a phone running Vakaros Connect, and the sensor itself. The sensor needs to be powered on and nearby. Some sensors require an external power source, see next section for additional information.

1. In Vakaros Connect, on the Boats tab, select the Boat you would like to add a sensor to. Make sure you already have an Atlas device in this Boat profile, and that it is powered on and nearby. Then, select **Add Device**.
2. Choose the **3rd-Party Sensor** option, then choose the sensor model from the list.
3. Wait for the Atlas to search for nearby sensors of that type.
4. Select your sensor from the list of found devices. If your sensor is not found, make sure it is powered on if using an external power source, or fully charged if it is rechargeable.
5. After adding the sensor, be sure to edit the Display Layout for the Atlas to add widgets that show sensor information.

Powering an external sensor:
The supported Airmar transducers require an external 12 V power source, which can be connected to the transducer cable using an adapter plug (not included), or by cutting the cable to expose the red (+12 V) and black (Ground) wires. If your boat does not have an onboard 12 V system, a small 12 V battery can be used and charged periodically. For smaller boats, 12 V power tool batteries are a popular choice.

Mounting Bracket



In order to mount the Atlas to your boat, you will need to install the included Atlas Mount. The mount can be attached directly to a mast track, bulkhead, or any flat surface using the two provided M4-14 screws or by running the included velcro straps through the holes in the side. The mount can be installed in either orientation, with the release tab facing up or down. Be sure that the release tab will be accessible with the Atlas installed—pulling this tab is the only way to remove the Atlas from the mount.

To attach the Atlas to the mount, first hook the solid end of the mount into one of the slots on the back of the Atlas, then push the Atlas towards the quick-release end of the mount until it clicks securely into place. If you don't hear a click, double check the alignment and try again. To remove the Atlas, press the Atlas gently towards the mount, pull on the quick-release tab, tilt the Atlas away from the mount to remove it.

For maximum mounting security, tie a safety line to the lanyard loop on the bottom right corner of the Atlas.

In order to use the magnetic compass, heel, and trim, the Atlas must be mounted to a fixed location on the boat (i.e. not on a boom or rotating mast). Offset angle settings for heel, trim and heading to account for different mount orientations can be set in the Connect App.

A section of mast brackets designed for the Atlas 2 are available in our store.
https://vakaros.com/collections/all

Care Instructions:

Store the Atlas 2 in its case to avoid scratching the anti-reflective & hydrophobic coating on the glass.

Wipe away salt & salty water when finished sailing.

To clean the Atlas 2, use a soft cloth. Dampen cloth with water if necessary.

Don't leave the Atlas 2 outdoors when not in use.

Don't leave the Atlas 2 submerged in water for extended periods. It will be fine, but it will get slimy!

Troubleshooting:

The Atlas 2 is designed to be rugged and low maintenance. It is covered by an industry-leading 2-year warranty, and contains no user serviceable parts. If you do encounter any issues, please try the following troubleshooting steps:

Atlas 2 does not show charging screen when placed on charging pad:
Your device may simply be fully charged. With a fully charged battery, the Atlas 2 may not respond to the charging pad. This helps extend the longevity of the battery. Keep in mind that it may take 10 or more hours of sailing time for your Atlas 2 to drop below the battery recharge threshold (~90%).

If your battery is not fully charged, double check that your charging pad is connected to a quality wall charger, or try a different Qi charging pad.

Screen layout different than expected:
The layout of the screen on the Atlas 2 can be customized from the Vakaros Connect app. Navigate to your boat, then select the Atlas 2 and click on the Display Layout option to customize the screen. You can also perform a factory reset from the devices tab within Vakaros Connect.

Unable to access features within Vakaros Connect:
Make sure both your Vakaros Connect app and Atlas 2 firmware are up to date.

If the troubleshooting steps above fail to correct the problem, or if you have any questions about setting up your Atlas 2, please contact Vakaros technical support for more assistance at support@vakaros.com.