

VBOX Sport Guide



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Introduction

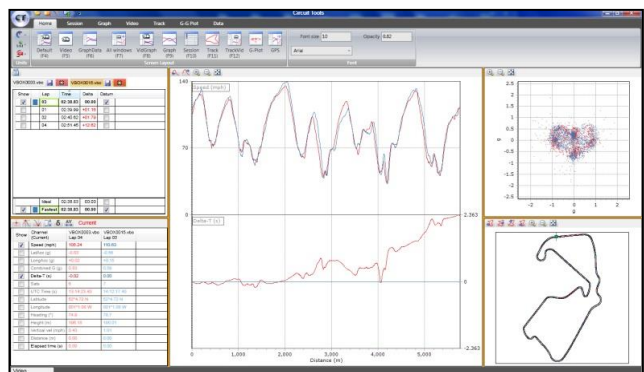
VBOX SPORT is a small, waterproof GPS data logger which connects directly to your iPhone™ and can be used to carry out vehicle performance testing, lap-timing and detailed driver analysis.



Side by side lap comparisons can be made using Circuit Tools, which is freely available to download from our website: vboxmotorsport.co.uk/software

Features:

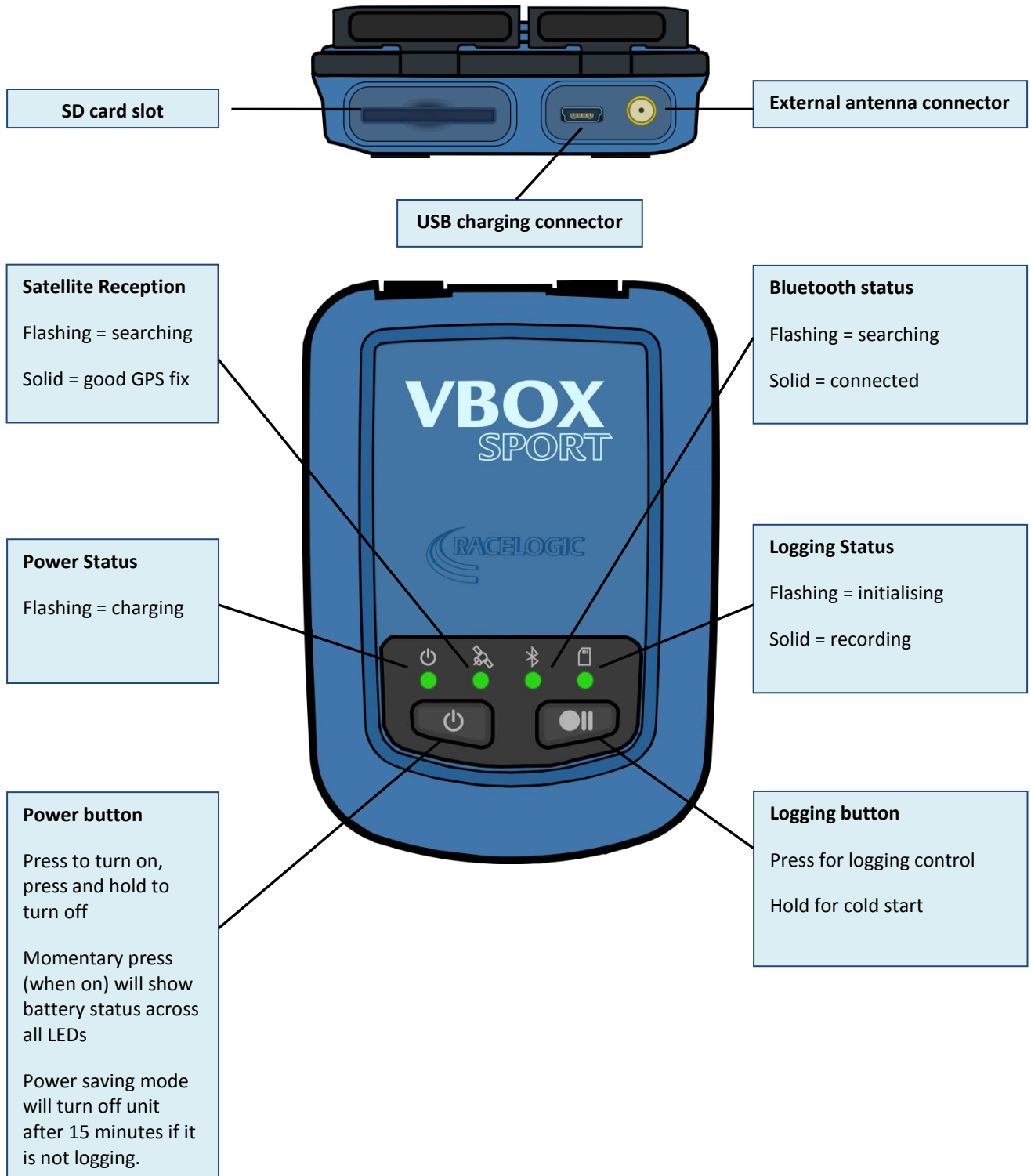
- 20Hz GPS engine
- 6+ hour internal battery
- Internal or external antenna
- Apple certified iPhone™ Bluetooth link
- Waterproof
- SD card logging



Circuit tools analysis software

Please register your VBOX Sport in order that we can update you when new firmware and software becomes available: vboxmotorsport.co.uk/registration

VBOX Sport Layout



Quick Start Guide

Using as Standalone Logger

If you are using the internal antenna, then the unit should be mounted low down in the windscreen to maximise the view to the sky. Optional accessories available on our website include a windscreen suction mount and an external antenna.



The external antenna gives the optimum GPS performance and also means that the VBOX Sport can be mounted anywhere convenient.

After mounting the VBOX Sport, insert the SD card, and briefly press the power button to switch on. Wait for the satellite led to stop flashing, and then logging will start as soon as you start moving. Alternatively, you can select 'record continuously' mode by pressing the logging button.

Pairing with an iPhone/iPad/iPod touch

VBOX Sport contains an Apple certified Bluetooth chip, which makes pairing a very simple process. Make sure Bluetooth is enabled in the iPhone **Settings** menu and that the VBOX Sport is switched on.

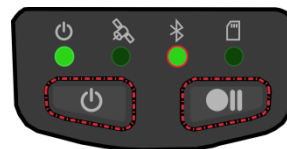
The first time you connect '**Not Paired**' will appear next to the serial number of your unit. To connect, simply tap this box.

This only needs to be done once, in the future, whenever the device is in range and the Bluetooth is on, connection will be made automatically.



Pairing with a second device

VBOX Sport can only be connected to one iOS device at a time. If you wish to connect to a new device, first you need to remove the pairing on the previous iOS device by selecting the VBSport in the **Devices** list and then select '**Forget Device**'. This only has to be done if the previous iOS devices Bluetooth connection is active.



After this you must clear the automatic pairing function of the VBOX Sport. This is done by pressing and holding both buttons for **2s** on the VBOX Sport at which point the Bluetooth LED flashes rapidly. (Note that this will only happen if it has been previously paired with another device).

Once both stages are completed then you can repeat the initial pairing procedure with the new device. If you then connect to your old device again, you will need to go through the pairing procedure again.

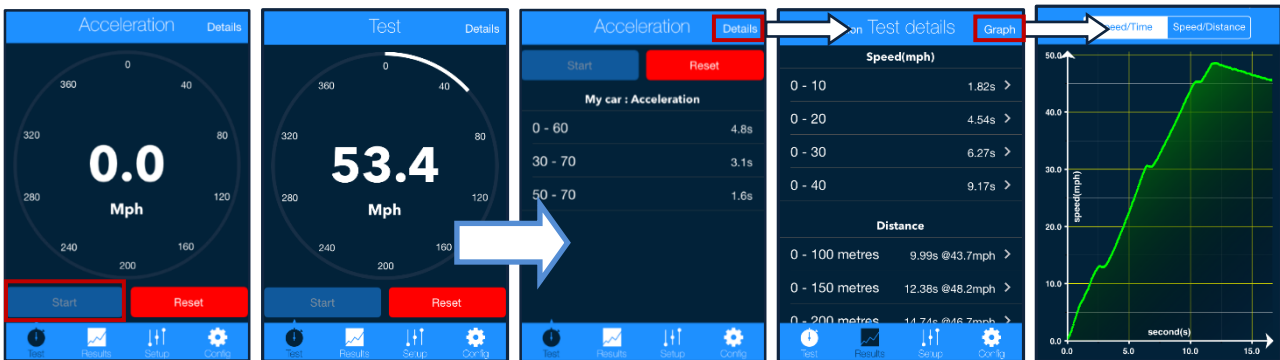
Using the Performance Test app

To undertake a performance test you will need to download the free 'VBOX Sport Performance Test App' from the iTunes™ store. To find the app, search for 'VBOX Sport'.

Acceleration testing

Once the app is installed and your VBOX Sport has been linked to your phone, wait for good satellite lock, and then press 'Start'. The timing will only begin once the car starts to move, and finish once the car has begun to decelerate. Note that if you move slightly and then come to a stop, the timing will reset.

To examine the results, press the 'Details' button in the top right corner of the main screen, and to display the graph, press the 'Graph' button in the top right corner of the results page.

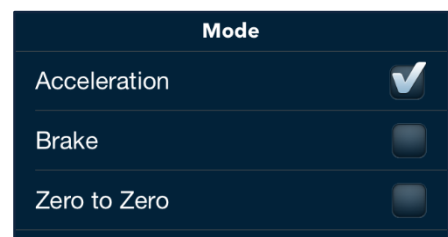


Brake testing

You can change the type of test using the 'Setup' button at the bottom of the screen. The Brake test starts as soon as the car starts to decelerate.

Zero to Zero testing

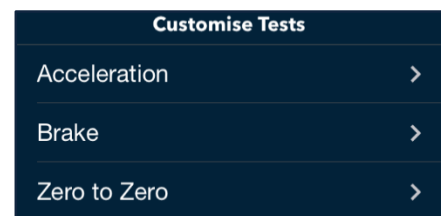
You can also carry out a 0-100-0 or similar acceleration followed by braking, by using the 0 to 0 function.



User defined tests

This section is used to set define test ranges. Only one range can be set for Zero to Zero tests, but there is no limit on the number of Acceleration or Brake tests.

Note that distance acceleration tests will calculate Mile, 1/2, 1/4 and 1/8th Mile results automatically.

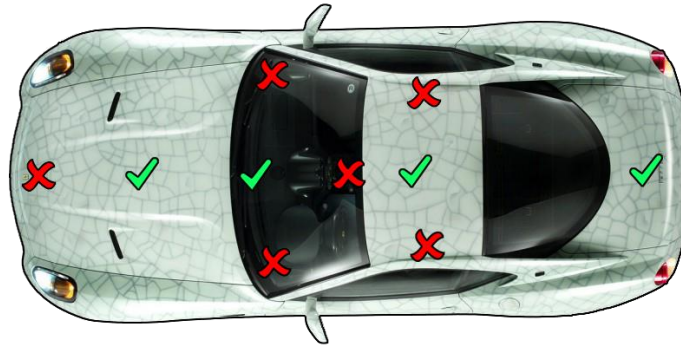


For further details on Racelogic's iOS applications, please look at the app specific manuals on VBOXmotorsport.co.uk.

Obtaining the best GPS quality

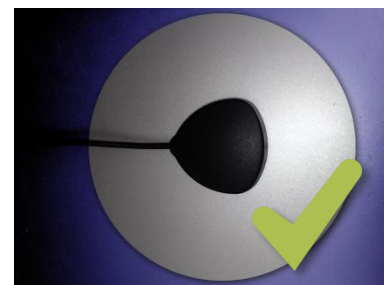
Placement of the GPS antenna is crucial to the quality of the data recorded by the VBOX Sport. Any metal close to a GPS antenna can disturb the signal in an unpredictable way due to interference from reflections of weak GPS signals.

For the best results, use an external GPS antenna in the **centre** of a metal roof away from any roof bars or radio antennas. Do not mount the antenna close to the edge of the roof as reflections from the ground may interfere with the signals. If mounting inside the vehicle and using the internal antenna, place the VBOX Sport on the dashboard as far forward as possible in the **centre** of the windscreen. Avoid the edges as reflections from the A-pillars will cause problems.



Mount the antenna or VBOX Sport as high up as possible and keep above any roll bars. Pieces of metal close to and above an antenna will badly disrupt the GPS signal.

If you are using an external antenna and your vehicle does not have a metal roof, then place the GPS antenna on a flat piece of metal **at least 10cm in diameter**. If this is not possible, you can use copper or aluminium foil to create a shaped ground plane underneath the antenna. For example, on a fibreglass roof, mount the antenna on top of the roof, and place some adhesive backed metal foil underneath, on the inside of the roof.



Various mounting options are available on our website for the VBOX Sport:

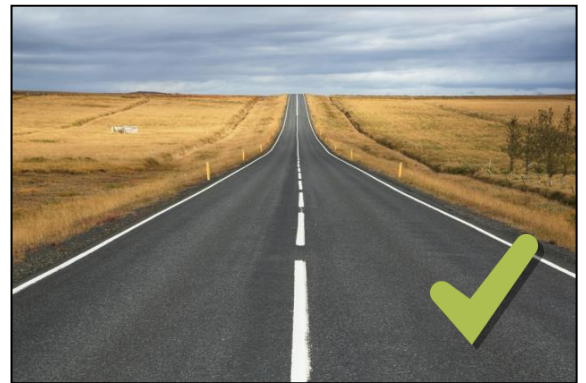


Acquiring Satellite Lock

Tall buildings or trees can block GPS signals, causing a reduction in the number and quality of satellites being tracked, leading to inaccurate position measurements and a noisy velocity signal.



GPS works best in open areas



Avoid tree lined roads

Cold starting the GPS

If the unit is struggling to acquire satellite lock, a GPS cold-start may be required, this is normally true when the unit hasn't been used for a long time. To perform a cold-start, press and hold the logging button for 5 seconds.

With a clear view to the sky, the GPS LED should stop flashing in 60s or less.



Performing a cold-start

Battery operation

To check the remaining battery time, briefly press the power button. The LEDs will then illuminate to indicate charge, with each LED representing 25% of remaining charge.

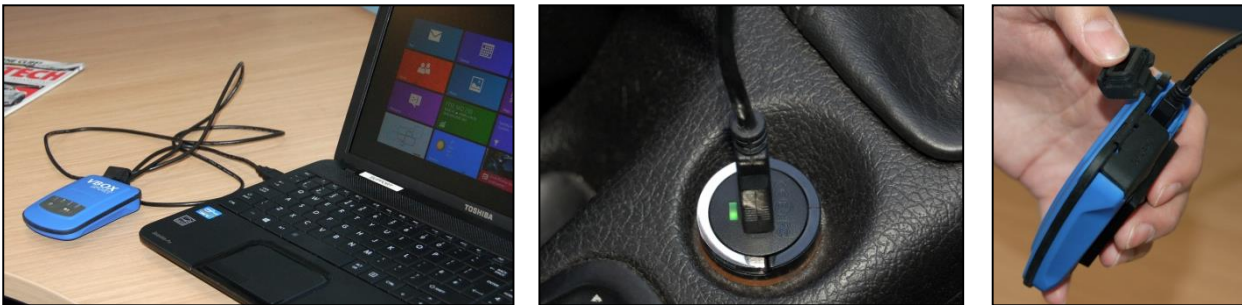


75% battery remaining

Charging

Charge the VBOX Sport using the provided USB cable, connected either to a powered USB port or to the optional in-car 12v charger. During charging, the power LED will slowly flash. Once the internal battery of the VBOX Sport has been fully recharged the Power LED will change to a double flash. This should take no more than 4 hours.

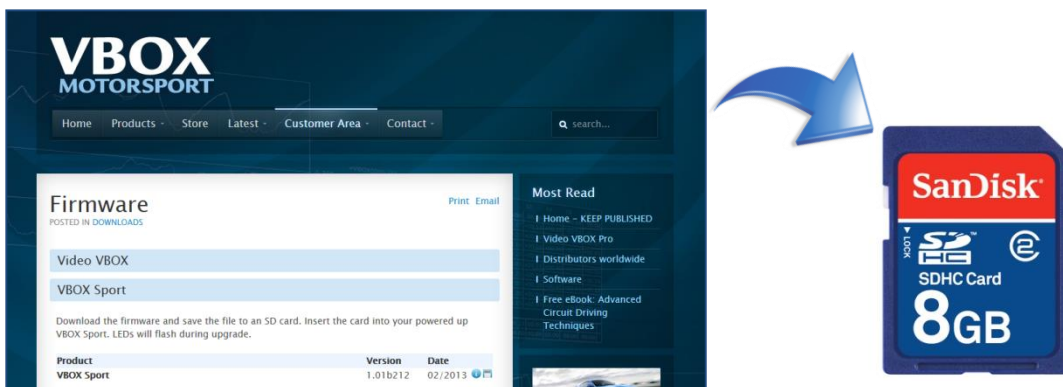
NOTE: The power LED double flashing indicates the unit is no longer accepting charge. Normally, this is due to the battery being full. However, this can also indicate that the unit has an inadequate power source or the battery is not charging at all. To determine this, please check the units charge as per the 'battery operation' section above.



Fully charged, the VBOX Sport will provide a minimum six hours battery life, but in typical use this can be in excess of eight.

Upgrading the VBOX Sport

Download the firmware from the website: <http://www.vboxmotorsport.co.uk/firmware> and transfer to an SD card.



Insert the card in to your VBOX Sport and power it up. All the LEDs will flash during the upgrade process. If the upgrade is successful, the upgrade file will be cleared from the card.

Warning: Do not attempt a firmware upgrade if the VBOX Sport's battery is low (Two LED's or less). For this purpose, we recommend you plug in to external power before starting a firmware upgrade.

Compatible Recording Media

The VBOX Sport can record to the MMC, SD, SDHC and SDXC media cards that are formatted in a FAT or FAT32 format.

SDXC cards will be formatted as exFAT by default, a format type not supported by the VBOX Sport. They can still be used, as long as they have been reformatted to FAT32. Various free third party applications are available online to format SDXC cards.

Compatible Apple Devices

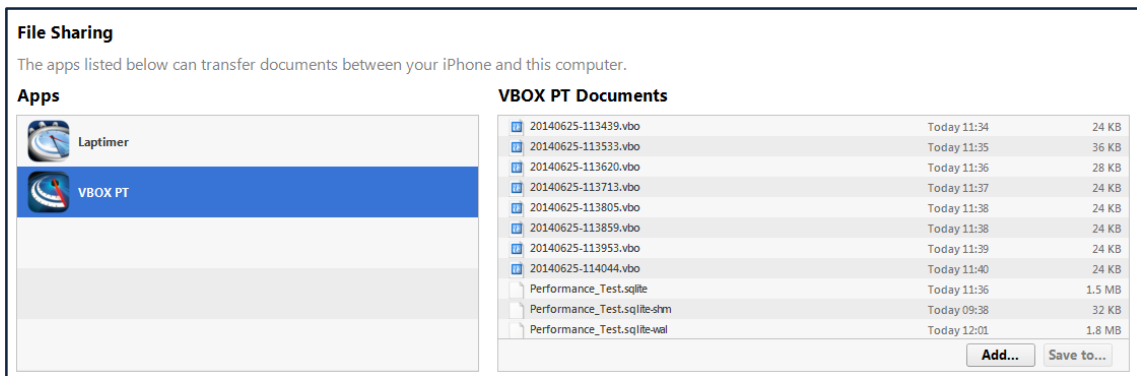
Made for iPhone (3GS, iPhone 4, iPhone 4S and iPhone 5), iPad (iPad, iPad 2nd, 3rd and 4th generation, iPad Mini), iPod touch (3rd, 4th and 5th generation).

Downloading data

If you use an SD card during your tests, then speed, position, time, distance and acceleration data is saved in a VBO format to the card. If you did not have an SD card, then you can download the data from the iPhone.

To do this, connect your device to iTunes, click on your device and enter the Apps tab.

Click on Performance Test to show test data (VBO) then highlight the relevant files to save to your chosen destination.



Troubleshooting

Symptom	Possible cause	Solution
Bluetooth connection Problems		
Cannot establish Bluetooth link	VBOX Sport trying to connect to a previously paired device	Clear VBOX Sport pairings by holding both buttons down for 2s then use the iOS function ' Forget device ' (see page 4)
Satellite reception problems		
No satellite reception (internal antenna)	Unit has poor view of sky	Place the unit low down with clear view of the sky (no obstructions or masking from objects, e.g. A-pillar)
	'Athermic' type windscreen in test vehicle	Use an external antenna
	Unit not used for a long period	GPS engine cold start (see page 7)
No satellite reception (external antenna)	Unit has poor view of sky	See guidance page 6
	No ground plane	Make sure external antenna is mounted on a metal plate or tin foil (minimum 10cm in diameter)
	Bad antenna connection	Check the condition of the GPS antenna cable. Check the antenna connector for obstructing debris
	Unit not used for a long period	GPS engine cold start (see page 7)
Logging Problems		
Media card not initializing	Media not inserted properly	Check that media card has been fully inserted so spring catch clicks down
	Media card not making clean connection	Check media card slot for dirt or debris
Continuous fast blinking media LED	Corrupt card	Reformat card to FAT32
	Incompatible media card	See page 8 for a guide on media & formats
	Media card full	Use alternative card or clear data from media
Not logging to media card	Corrupt card	Try alternative media, or reformat card to FAT32
Locked Unit		
Unit unresponsive	Possible hardware or firmware fault	Hold down power button for 12 seconds to force power off. If no response, contact support@racelogic.co.uk

Contact Info

Racelogic Head Office	Racelogic Deutschland	Racelogic USA
Unit 10, Swan Business Centre, Osier Way, Buckingham Bucks MK18 1TB, UK	Postplatz 5 35781 Weilburg	27240 Haggerty Rd, Suite E17 Farmington Hills, MI 48331
Tel: +44 1280 823 803	Tel: +49 6471 927 996	Tel: +1 248-655-0557
Email: support@racelogic.co.uk	Email: support@racelogic.de	Email: support@racelogicusa.com