SpeedPuck Manual

Firmware Version v1.3

Contents

Introduction

The SpeedPuck is a GPS device designed for sailing and motor sports.

Features

- Speed and compass updated at 2 times a second
- Header/Lift indicator updated at 2 times a second
- Maximum and best 10 second average speed recall
- Over 20 hours of GPS data storage at record rate of every 2 seconds
- Up to 20 hours of battery life
- Data downloading through USB link
- User configurable device settings allow customization of select SpeedPuck functionalities
- Internet updatable firmware allows you to benefit from ongoing product improvements and feature additions
- Waterproof to 3m

VELOCITEK

Basics

Batteries

Battery Installation

The SpeedPuck requires 3 AA batteries to operate. The battery compartment can be reached by opening the back case.

Battery Indicator

Full Half Remaining Recharge Battery

The battery indicator on the SpeedPuck is located on the bottom right of the LCD screen.

Battery Types

We recommend using rechargeable batteries over standard disposable AA batteries. Disposable batteries will provide approximately 10 hours of life while rechargeable batteries will last for 20 hours or longer.

Signal Acquisition

The operation of the SpeedPuck relies on low-power radio signals from GPS satellites that orbit the earth at an altitude of approximately 20,000 km. As a result, the SpeedPuck must be outdoors with a clear view of the sky to function properly.

When the SpeedPuck is first turned on, it must download information from GPS satellites before it can acquire a GPS solution. The data download process normally takes 1-2 minutes or up to 5 minutes if fresh batteries have just been installed.

Installation Guide

The SpeedPuck can be installed anywhere on the boat with a view of the sky. The SpeedPuck comes with dual lock, an industrial strength Velcro, on the back for easy installation. Several mounting options are available. For details, go to http://www.velocitek.com/products/mounting-hardware.

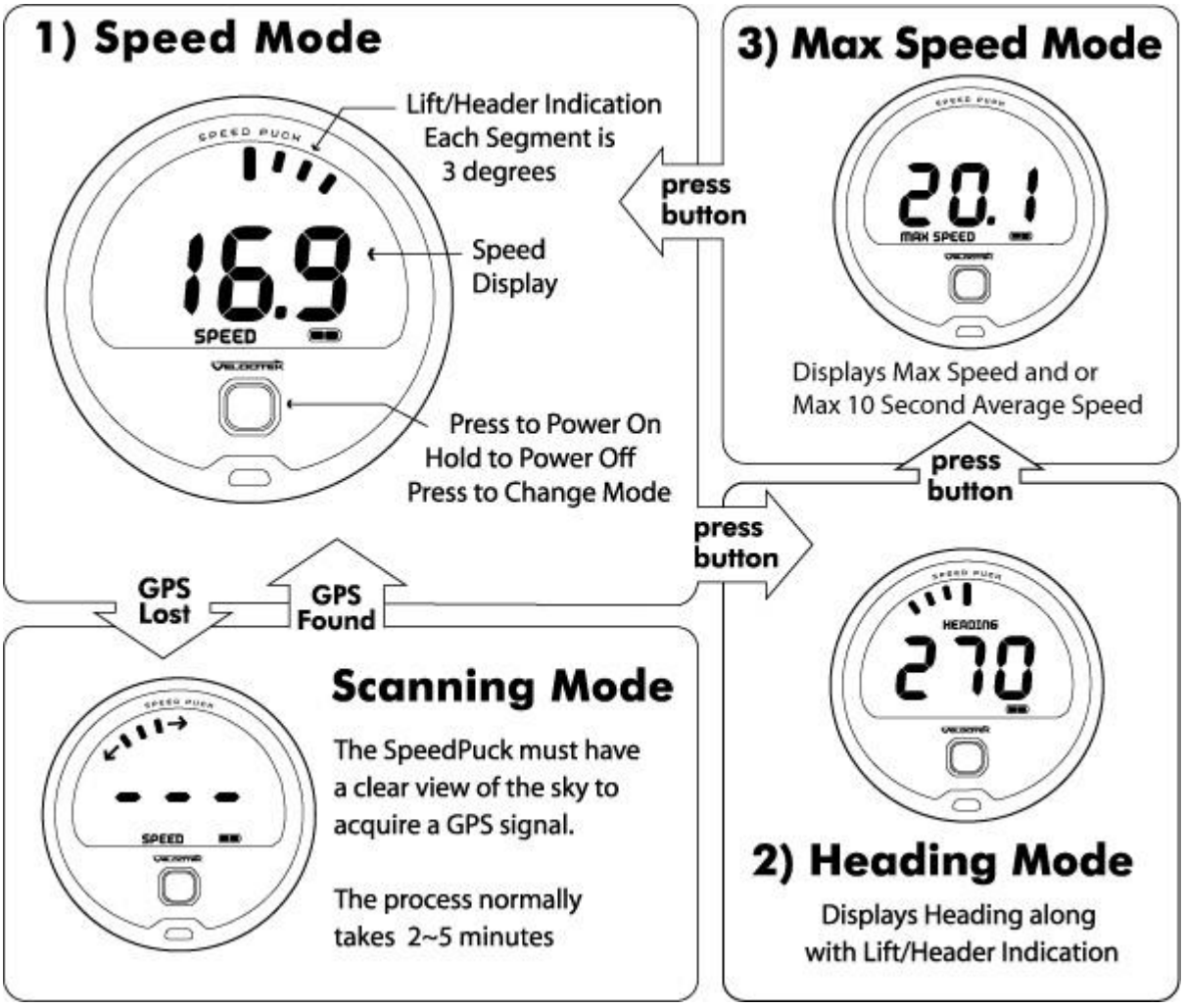
GPS Data Storage

The SpeedPuck records GPS data whenever the device is on and GPS signal is detected. The device can be configured to record data every second, every 2 seconds or every 4 seconds. The SpeedPuck can store up to 20 hours of data when recording GPS data every 2 seconds.

Operation

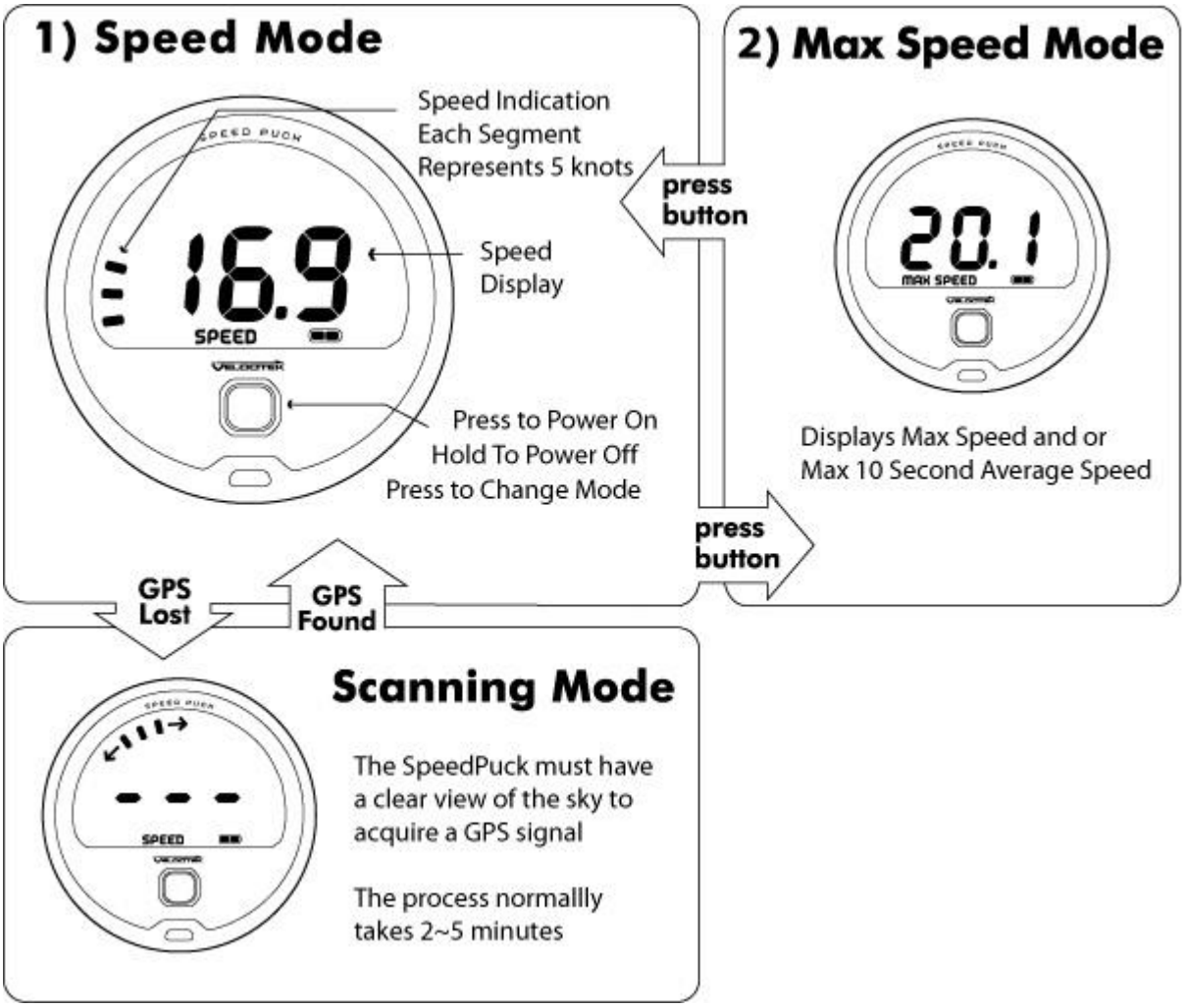
This section will be split by SpeedPuck utility. The SpeedPuck can be configured by editing the device operation option to suit a utility. The SpeedPuck has 3 operation options, sailing, motor sports and data logger which can be configured by editing the device settings.

Sailing Operation



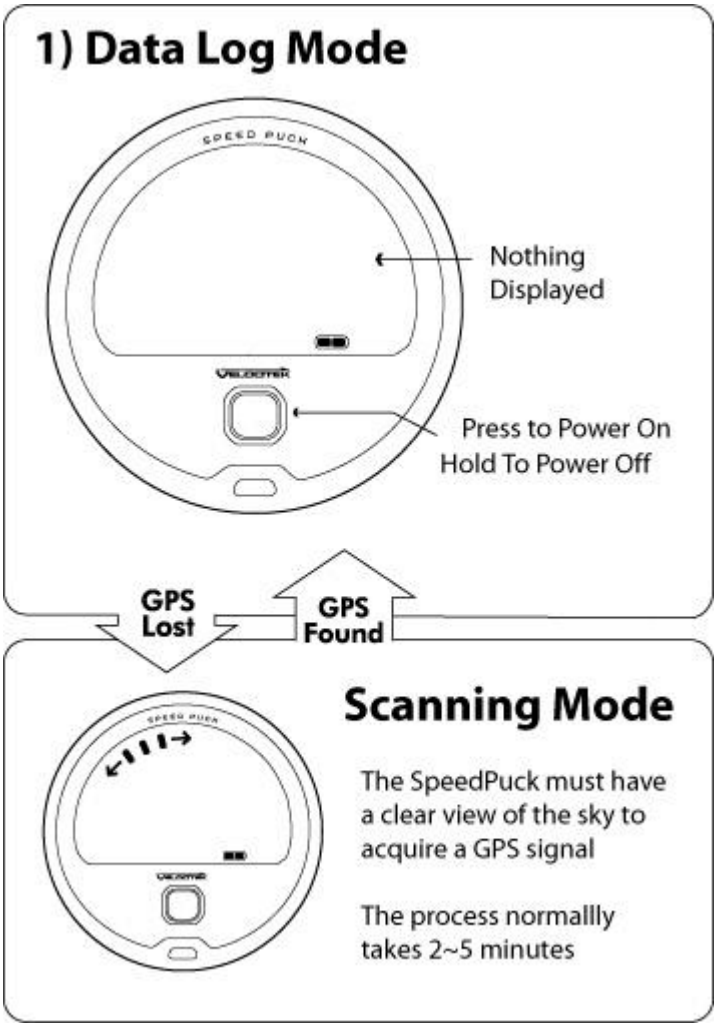
The sailing device operation option is for those racing dinghy boats.

Motor Sports Operation



The motor sports operation option is for the motor sports enthusiasts who want to know exactly how fast they are going.

Data Logger Operation



The data logger operation option is available in case rules prevent you from using the features offered by the SpeedPuck. The data logger mode displays blank, but records your GPS data which can be replayed later for analysis.

Displays

Following are details on the various displays.

Speed

The speed can be displayed in knots, miles/hour, kilometers/hour or meter/second by editing the device settings. The default is to display speed in knots.

Heading

Either true or magnetic heading can be displayed at an update rate of 2Hz (twice a second). True heading is the direction you are moving referenced to true north. Magnetic heading is the degrees you are heading in reference to the local magnetic north. When using a magnetic compass in conjunction with the SpeedPuck, setting the compass declination to the local declination is useful since both instruments will be referenced to magnetic north. By default the compass displays true heading, to display magnetic heading the local magnetic declination must be defined in device settings.

The SpeedPuck displays heading only when your speed is greater than 1 knot, otherwise it will show a heading of 0 degrees regardless of which direction you are actually moving.

The difference of the SpeedPuck to a conventional magnetic compass is that the SpeedPuck measures the direction the device is moving in rather than the direction it is pointed in.

A major benefit of the SpeedPuck over a conventional magnetic compass is that it will give you accurate heading information, regardless of the orientation in which it is mounted on your boat. SpeedPuck's compass reading depends only on the direction you are moving, not the direction the device is pointing.

Max Speed

Instantaneous and or 10 second average max speed can be displayed. The max speed mode can be displayed to display, the maximum instantaneous speed, the maximum 10 second average speed or flash between both. To configure max speed display, edit the device settings.

Lift/Header Bar Graph Indicator

The SpeedPuck automatically detects when a sailor is trimmed to a heading then provides the header/lift indication. The trim angle is set when the sailor is trimmed at a heading for over 20 seconds. Then header/lift indication is given off of that trim angle. Each segment represents 3 degrees. Once a tack or a jibe is detected the indicator resets and nothing is indicated until another trim angle is set. Each bar segment represents 3 degrees of wind shift.

Speed Bar Graph Indicator

The Speed Bar Graph Indicator displays a bar graph with each bar segment representing 5 knots.

Configuration

The SpeedPuck can be configured by editing the device settings by connecting it to a PC via USB cable.

Device Settings

The following device settings are available.

Device Operation

The device operation should be set depending on the SpeedPuck utility. Three operation options available are sailing, motor sports and data logger. Each of these options tailors the SpeedPuck functionality to the utility. For details on operation options refer to Operation.

Logging Rate

Logging rate is the rate at which the SpeedPuck records data. User can select from 1Hz (once every second), 1/2Hz (once every 2 seconds), and 1/4Hz (once every 4 seconds). The default logging rate is 1/2Hz

Speed Displayed In

Speed can be displayed in 4 different units of measurement, knots, miles/hour, kilometers/hour and meters/second. The default unit of measurement is knots.

Max Speed Display

There are 3 different maximum speed display modes you can choose from. Display maximum 10 second speed, maximum instantaneous speed and flash between both maximum speeds. The default is to display maximum 10 second speed.

Speed and Heading Damping

Damping on the SpeedPuck corresponds to the amount of time to which the raw GPS data is averaged over before it is displayed. Damping has the effect of smoothing out the displayed data while low damping allows the displayed data to update faster.

High damping is good for evaluating different trim settings as it smoothes out spikes in the measurements resulting from gusts and wave action. On the other hand, low damping will help you to quickly identify the effect of gusts and wind shifts.

The damping on the SpeedPuck can be set for speed and heading independently to 10 different settings, from no damping to damping of 4 minutes. The default damping is 1 second for both speed and heading damping.

We recommend that you experiment with different damping levels. The optimal setting will depend on your boat, the conditions and what you are using the instrument for.

Bar Graph Display

Option to turn the display on or off is available when the sailing device operation option is selected.

Compass Declination

When defined to the local declination, the heading will be referenced to local magnetic north. Positive declination represents west and negative declination represents east. To reference the compass measurement to true north, input 0 for compass declination. Default compass declination is 0 degrees. When using a magnetic compass in conjunction with the SpeedPuck, setting the compass declination to the local declination is useful since both instruments will be referenced to magnetic north.

Firmware Update

Firmware is the software that runs on the SpeedPuck. Periodically firmware updates will be available with bug fixes and enhanced features. To update the firmware you must download either Control Center or SpeedPlay and connect your device to a PC.

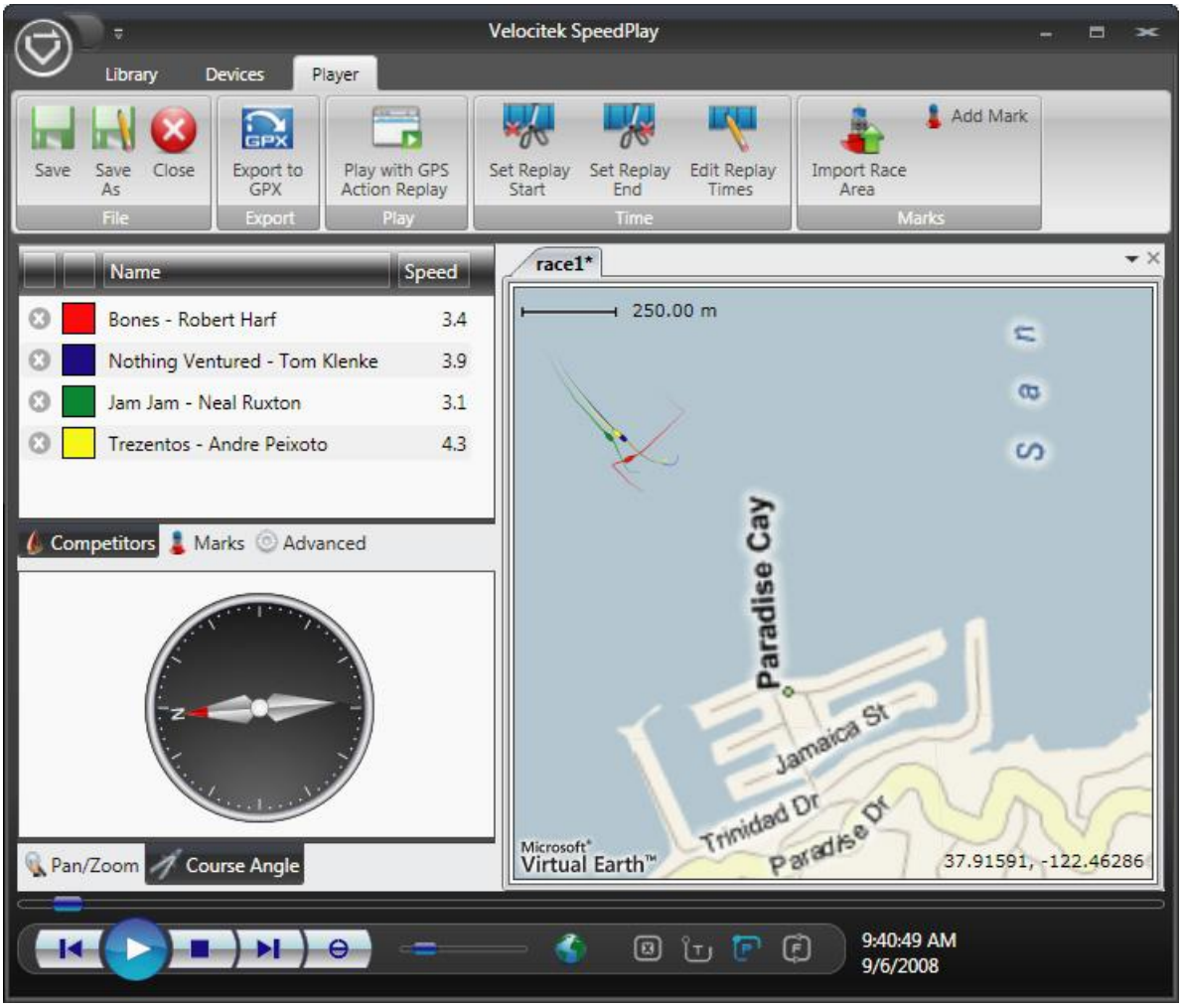
Software

There are two software packages, Control Center and SpeedPlay, available from Velocitek which allow you to perform GPS data download, customize device functionality and update firmware.

Control Center

Control Center is the basic free software. To find out more and download the software, go to http://www.velocitek.com/products/controlcenter.

SpeedPlay



SpeedPlay is a more powerful tool which facilitates replaying the GPS data from multiple Velocitek devices. SpeedPlay is a must have if you have fellow sailors who also own a Velocitek unit. To find out more and download the software, go to http://www.velocitek.com/products/speedplay.

Maintenance

To ensure your SpeedPuck's enclosure remains watertight and the electronics are not destroyed by corrosion, please take the following precautions:

- Dry case with a towel before opening.
- Wipe away sand or debris on the gasket before screwing the back case on.
- Once the case is open wipe away any loose water droplets.
- If you ever see signs that water is leaking inside the enclosure please contact Velocitek immediately at (800)-693-1610 or support@velocitek.com to arrange for your device to be repaired and made watertight again.

Contact

Mail: Velocitek, LLC
271 B Kahiko St.
Paia, HI 96779
USA

Fax: +1-650-618-2679

Phone: Calls will be answered 9AM ~ 6PM, Hawaiian Standard Time (GMT-10)
US and Canada: +1-800-693-1610
International: +1-650-362-0499

Email: support@velocitek.com

Website: http://www.velocitek.com

Forum: http://www.velocitek.com/forums/

Support: http://www.velocitek.com/support

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