



P R O S T A R T

Firmware Version v1.3

Revision Date April 9, 2013

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Introduction



When we started brainstorming about the ProStart, we asked sailors which functions they actually use on the SC1, the predecessor to the ProStart. What was surprising to us was that no one used VMG function and everybody used the distance-to-line function.

A light bulb went off in our heads and we decided to design the ProStart around the distance-to-line function. Every bit of our effort was focused on making the distance-to-line feature easy to use, effective and communicate clearly.

The result is the best distance-to-line tool ever.

Features

Only essential features actually used by professional sailors are included in the product.

- Speed, compass, and distance to line updated twice a second
- Count down start timer
- Header/Lift indicator updated twice a second
- Maximum and best 10 second average speed recall
- Over 30 hours of GPS data storage at a record rate of every 2 seconds
- Over 15 hours of battery life
- Data download through USB link
- User configurable bow offset for distance to line and magnetic declination
- Internet updatable firmware allows you to benefit from ongoing product improvements and feature additions
- Waterproof (IPX8) to 3m

Installation



The ProStart can be installed anywhere on the boat with a view of the sky.

The ProStart comes with a cradle that interlocks with it. Install the cradle permanently on your boat. Press the tab on the cradle to unlock the ProStart from it.

Several mounting options are available. For details, go to <http://www.velocitek.com/products/mounting-hardware>.

Batteries

The ProStart requires 3 AA batteries to operate. The battery compartment can be reached by opening the back of the case. The batteries are not included with the ProStart.

Use Rechargeable Batteries

We recommend using rechargeable NiMH AA batteries over standard alkaline disposable AA batteries. Both disposable and rechargeable batteries will provide approximately 15 hours of life. Be environmentally responsible by using rechargeable batteries instead of disposable batteries.

Know When to Recharge or Replace Your Batteries



Full



Half Remaining



Recharge Battery

The battery indicator is located on the bottom of the LCD screen. With disposable batteries, there will be a tendency for the life indicator to remain full for most of the battery life and only drop down to the lower levels when the batteries are nearly exhausted.

Buttons



There are a total of 8 buttons on the ProStart as illustrated above. The buttons will be referred to in capitalized blue text throughout this document as follows, **PWR**, **MODE**, **MAX**, **RESET**, **+1**, **PIN**, **RC** and **GUN**.

Modes



Start Mode: timer & distance



Race Mode: speed & heading

The ProStart function is separated into two modes each providing you with the essential information at different stages of the race, before and after the gun.

The mode indicator can be found at the upper left hand corner of the LCD screen.

Start Mode



The start mode combines a timer and distance to line display to provide the information necessary for a perfect start at the gun.

The semi-circles next to the **PIN** and **RC** buttons indicate if the respective ends are set. When both ends are set a line appears between them to illustrate that the line is set.

Timer

The count-down timer displayed as mm:ss. The time can be set from 1:00 to 15:00.

Distance-to-line

Distance-to-line is the perpendicular distance to the user defined line. Refer to Set the Start Line on how to set the start line. Distance-to-line is displayed in meters. A negative distance-to-line means that the boat is over the line. Three hyphens '---' are displayed when the line is not defined and a GPS signal is available. When the distance-to-line is larger than 100 meters '>99' is displayed.

Distance-to-line Bar Graph

The distance-to-line bar graph provides a graphical representation for distance-to-line so you know where you are relative to the line at a glance. The bar graph extends above and below the illustrated line with each bar segment representing 10 meters.

Race Mode



The race mode displays information crucial during the race, speed, heading and header/lift to the sailor.

Speed

Speed is calculated by the GPS unit by measuring the Doppler shift in GPS signals. It is displayed in knots.

Heading

Heading (Course Over Ground) is calculated by the GPS unit by measuring the Doppler shift in GPS signals.

Either true or magnetic heading can be displayed in compass mode by configuring the magnetic declination on the ProStart. True heading is referenced to true north. Magnetic heading is referenced to the local magnetic north. When using a magnetic compass in conjunction with the ProStart, the magnetic heading is useful since both measurements 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 ProStart 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.

Unlike a conventional magnetic compass, ProStart's compass reading depends on the direction you are moving, not the direction the device is pointing. A major benefit of the ProStart 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.

Lift/Header Bar Graph

The ProStart automatically detects when a sailor is trimmed to a heading then provides the header/lift wind shift relative to the trim angle. Once a tack or a jibe is detected the indicator resets and nothing is indicated until another trim angle is set. Automatic detection of the trim angle normally takes 20 seconds of sailing trimmed. Each bar segment represents 2.5 degrees of wind shift.

Configuration

The ProStart has two settings that can be configured: compass declination and bow offset. The instructions on how to configure the settings are on page 18. Descriptions of the two settings follow.

Compass Declination

When defined to the local declination, the heading will be referenced to local magnetic north. Positive declination represents east and negative declination represents west. 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 ProStart, setting the compass declination to the local declination is useful since both instruments will be referenced to magnetic north.

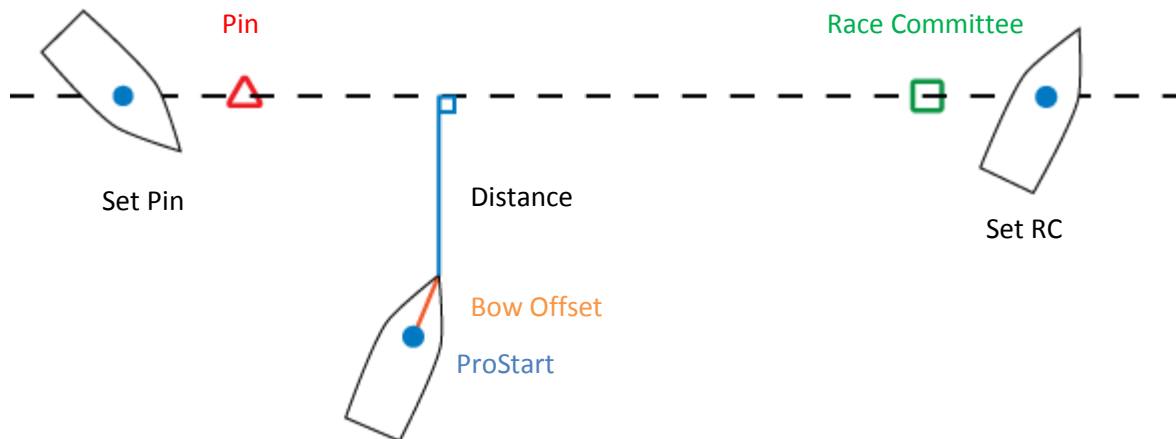
Bow Offset

Bow offset is the distance in meters from where the ProStart is mounted to the bow of your boat. In start mode the offset is used to calculate the distance between the tip of your bow and the start line. The default is 0 meters.

GPS Data Storage

The ProStart records GPS data whenever the device is on and GPS signal is detected. The device records data every 2 seconds. The ProStart can store up to 30 hours of data.

Understanding Distance to Start Line



The above illustration provides a graphical definition of distance to start line and how you can set it.

Setting Ends

The start line ends can be set anywhere along the start line. We recommend sighting both the pin and the race committee ends from outside the line. Another method is to get close to the ends just inside the line and set them. The ends can be set at any time, set the ends well before the start.

Bow Offset Calculation

Bow Offset is subtracted from distance assuming that the boat orientation matches the GPS heading (COG).

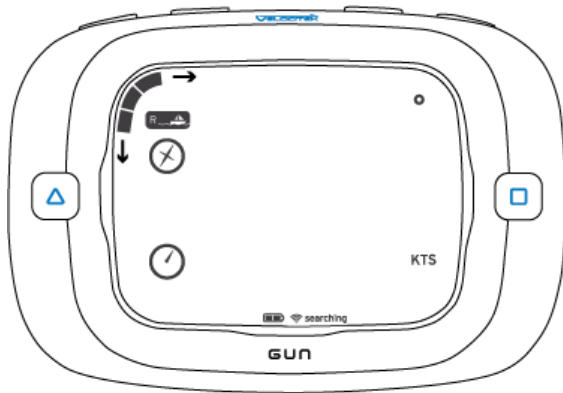
Animated Demonstration

For an animated demonstration of how to set the start line go to

<http://www.velocitek.com/prostart-demo>

Operation

Acquire a GPS Signal



Searching for GPS signal

Searching indicator is displayed at the bottom and bar segments travel around the circumference of the LCD.

GPS Lost ↑ ↓ GPS Found



GPS Signal Acquired

The operation of the ProStart 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 ProStart must be outdoors with a clear view of the sky to function properly. Stay away from tall buildings and forests when acquiring a signal off the water since these obstacles block or reflect the signals making it difficult to obtain signal.

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

Show Off Your Maximum Speeds

Hold **MAX** to display max speeds

Press **RESET** while max speeds are displayed to reset the max speeds



Display both your instantaneous and 10 second average maximum speed by holding **MAX**. To reset the maximum speeds, press **RESET** while holding **MAX**.

Keep Your Hand on the Tiller



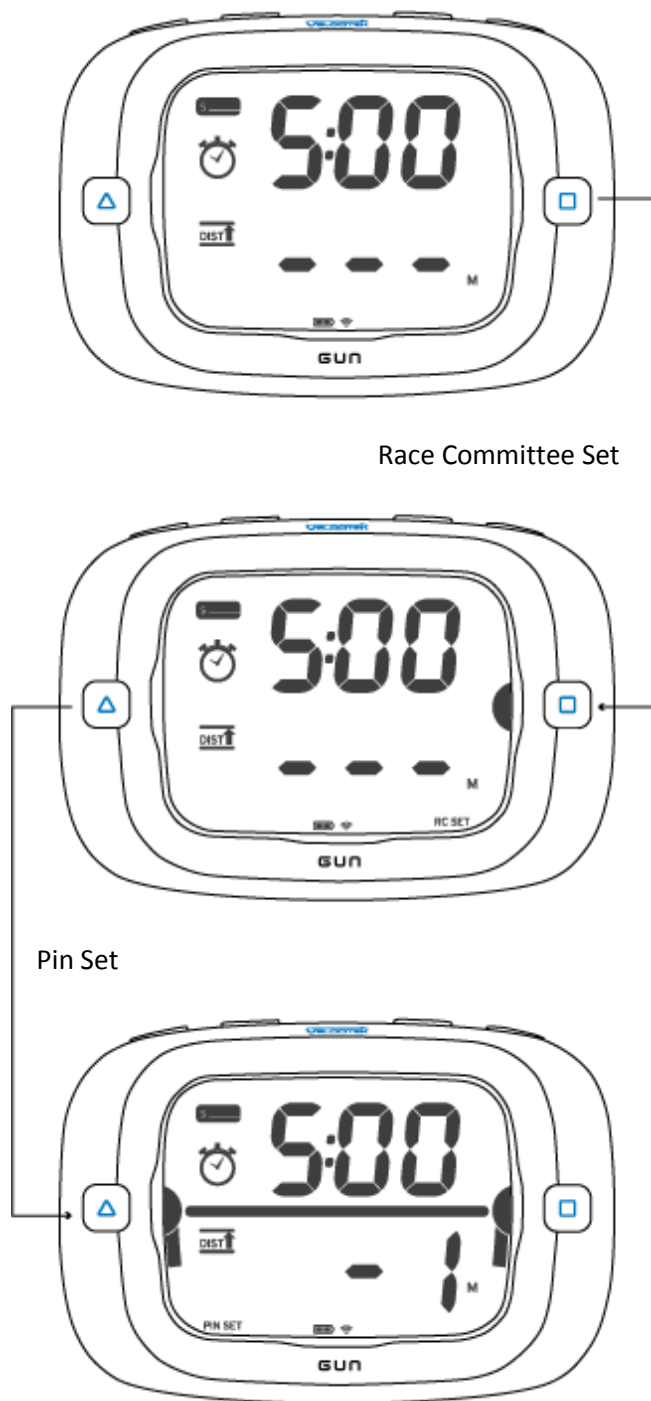
when timer expires



when **RC**, **PIN**, **GUN**, **RESET**, **+1** is pressed

Modes switch automatically to minimize the need for your input. The mode switches from Start to Race mode when the timer expires. The mode switches from Race to Start mode when any of the start related buttons, **RC**, **PIN**, **GUN**, **RESET** and **+1**, are pressed.

Set the Start Line



No Ends Set

Set the start line pin and race committee ends by pressing **PIN** and **RC** respectively.

The semi-circles next to **PIN** and **RC** indicate if the respective ends are set. The semi-circles flash when the end is not set and go solid when set.

The ends can be set in either order.

Race Committee End Set

Set the pin end by pressing **PIN**.

The set end is indicated by a semi-circle next to **RC** in the illustration.

When an end is set, an indicator will flash for 3 seconds at the bottom of the LCD at the respective ends.

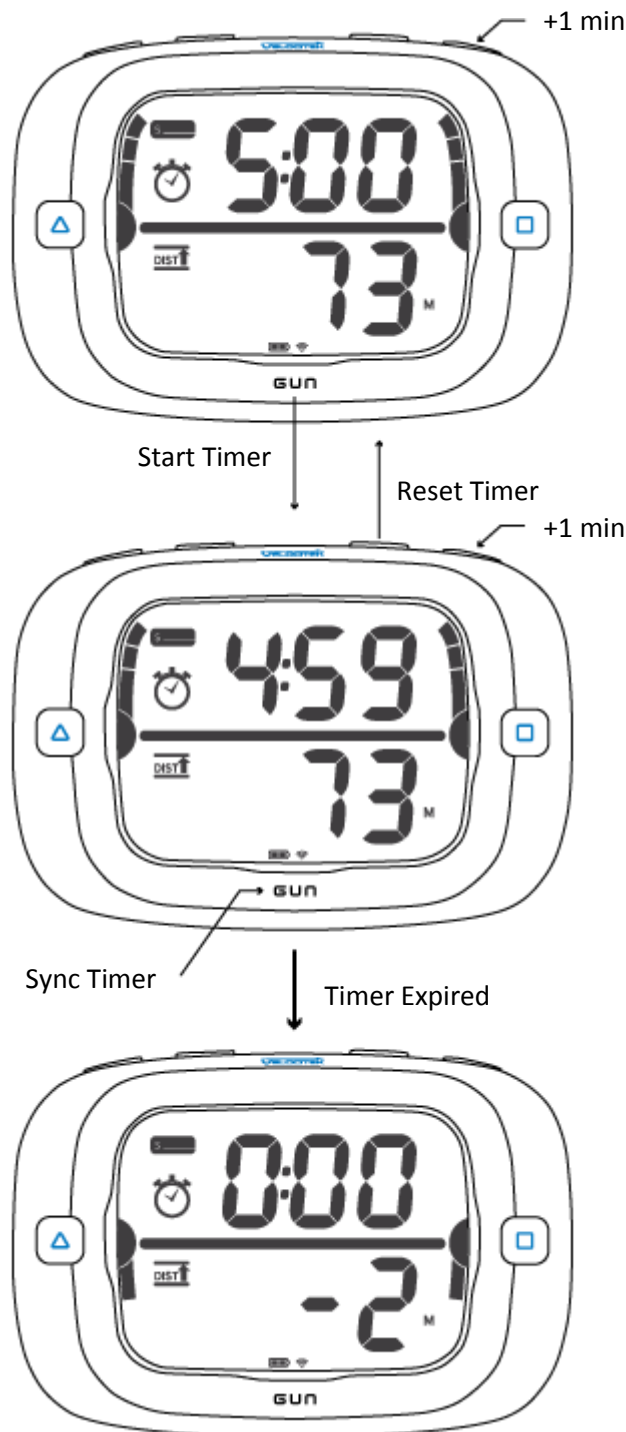
Start Line Set

The ends can be set again by pressing **PIN** or **RC**.

Press both **PIN** and **RC** simultaneously to clear the ends.

A line appears between the semi-circles to indicate that the line is set. Distance is displayed digitally and graphically.

Use the Timer



Timer Reset

Change the reset time by pressing **+1** to scroll through the minutes. The timer can be set to 1:00 ~ 15:00.

Start the timer by pressing **GUN**.

Timer Counting Down

Add one minute to the timer without stopping the timer by pressing **+1**.

Reset timer by pressing **RESET**.

Sync timer by pressing **GUN**. The timer will sync to the nearest minutes, 4:00 in this case.

Post Timer Expire

The timer will display the distance at 0:00 for 10 seconds after the timer expires.

After the 10 seconds, the display will switch automatically to race mode.

How to Set Compass Declination and Bow Offset

Compass declination and bow offset must be set in sequence. In other words, to set the bow offset you must first go through the declination menu then press **GUN** to get to the bow offset menu as illustrated below.

Declination Menu

Hold to Enter Declination Menu
Press to Exit

Enter the declination menu by holding **RESET** for 3 seconds.

Adjust declination by pressing **RC** and **PIN**. Declination can be adjusted by increments of 1 degree.

Set the declination and enter bow offset menu by pressing **GUN**. Exit menu without setting declination by pressing **RESET**.

Bow Offset Menu

Adjust bow offset by pressing **RC** and **PIN**. Bow offset can be adjusted increments of 0.5 meters.

Set the bow offset and exit the menu by pressing **GUN**. Exit menu without setting bow offset by pressing **RESET**.

Labels in diagram:
-1 (left of RC button), +1 (right of PIN button), -0.5 (left of RC button), +0.5 (right of PIN button), GUN (bottom center), Exit (top right), Set Declination and Enter Bow Offset Menu (bottom left), Set Bow Offset and Exit Menu (bottom center).

Firmware Update

Firmware is the software that runs on the ProStart. Periodically firmware updates will be available with bug fixes and enhanced features. To update the firmware you must download either Velocitek Control Center (for Windows) or Velocitool (for Mac) and connect your device to a computer.

Software

There are two software packages, Velocitek Control Center (for Windows) and Velocitool (for Mac), available from Velocitek which allow you to perform GPS data download, customize device functionality and update firmware.

Velocitek Control Center / Velocitool

Velocitek Control Center and Velocitool are free software. To find out more and download the software, go to <http://www.velocitek.com/products/controlcenter>.

Maintenance

To ensure your ProStart'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 closing the back case.
- 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 (866)-498-6737 or support@velocitek.com to arrange for your device to be repaired and made watertight again.

Contact

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Website: <http://www.velocitek.com>

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

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

Compliance

FCC Compliance Statement

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 interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Canadian Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

European Community Compliance Statement

The equipment complies with The EMC Directive 2004/108/EC.

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