Speed Sensor

USER'S MANUAL

Please Register your product at www.carinaesports.com

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FCC Notice

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.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

Safety Precautions

1. Read all instructions.
2. Do not use the Speed Sensor in water.
3. Clean with a dry cloth.
4. Only use attachments specified by the manufacturer.
5. Use the Speed Sensor only with wood or aluminum bats
6. Do not attempt to service the Speed Sensor by yourself.
7. 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.

Preparing your new Speed Sensor for use

Install Battery (Refer to Figure 1, Figure 2 below)

1. Remove SpeedSensor from packaging
2. Orient the SpeedSensor with LCD face down. Remove strap from SpeedSensor to expose the battery cover. Figure 1.
3. Remove the battery cover by turning counterclockwise
4. Install CR2032 battery under prongs. Figure 2.
5. Install and turn battery cover clockwise, using triangles for alignment
6. Install hook and loop strap with the furry side towards the battery cover.

Press the SpeedSensor power/LCD button. The LCD should turn and blink the green LED should blink rapidly.

The Speed Sensor is now ready for use.

Figure 1.

Figure 2.

Figure 3.

Overview of Speed Sensor

The Speed Sensor is mounted on a baseball or softball bat and used to measure swing speed and swing radius. The Speed Sensor measures the speed and radius of the swing during contact (hit) or non-contact (strike) with a pitched ball.

The Speed Sensor has a two character LCD display for displaying the calculated speed or radius to the batter.
The LCD display also serves as the power on/off and mode select button.

The Speed Sensor also has a green LED used as a status and mode indicator.

The Speed Sensor can operate while connected and controlled by an IOS device, allowing a
coach to monitor the results of the swings.

The Speed Sensor also operates in a standalone mode allowing the batter to observe the swing results on the LCD.

Speed Sensor Features

1. Bluetooth Low Energy – One year battery life (or 25,000 swings) using a CR2032 battery
2. Two character LCD
3. Status LED
4. Two operating modes - connected (BLE) or standalone
5. Weight - .8 oz
6. When operating in stand alone mode, stores last 50 swings
7. Displays swing speed or swing radius, user selectable
8. Attaches to bat with non-slip hook and loop strap

Basic Operation

LCD Button
Press the LCD button once to turn the Speed Sensor on.
Press and hold the LCD button for longer than three seconds to turn the Speed Sensor off.
The LED will blink rapidly when the Speed Sensor is turned on. When the LED is blinking rapidly, the Speed Sensor is broadcasting connection information over Bluetooth and waiting to connect to an IOS device. After thirty seconds, if a connection has not occurred, the Speed Sensor will transition to standalone mode. The LCD will flash and the LED will begin to blink.

When operating in connected or standalone mode, pressing the LCD button selects what is displayed on the LCD. Every press (of less than three seconds) will enable either speed or radius to be displayed. The blink rate of the LED will change to indicate what is being displayed. Fast blink indicates speed, slow blink indicates radius.

Basic Operation (cont.)

When operating in standalone mode the Speed Sensor stores the last 50 swing results in internal Flash memory. Theses results can be automatically transferred to the IOS app when connected. The IOS app can also delete the data stored in the Speed Sensor if the results are not needed.

Using the Speed Sensor

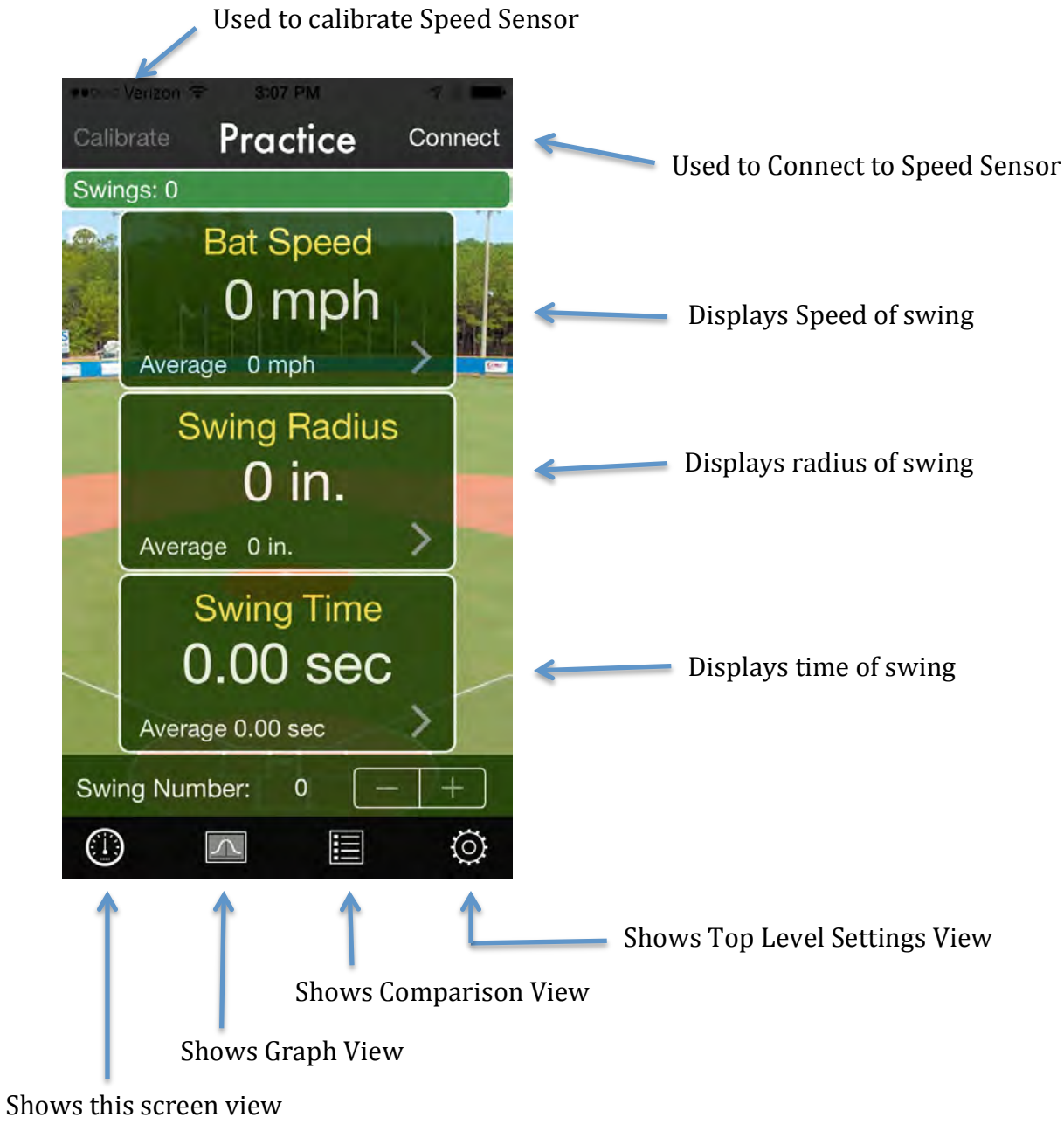
1. Mount the Speed Sensor on the bat with the hook and loop strap
    a. Loosely attach the Speed Sensor to the bat towards the handle
    b. Balance the bat on two fingers
    c. Grab the bat with one edge of your hand on the balance point and the other edge towards the Speed Sensor
    d. Slide the Speed Sensor up against your hand
    e. Tighten and clamp the hook and loop strap

2. Press the LCD button and either connect to IOS app or wait 30 seconds and use the Speed Sensor in stand alone mode.
3. Swing Away!

Speed Sensor App

The Speed Sensor app provides the mean to record, view and display additional information about your swing. In addition, user settings allow for customizing the behavior of the Speed Sensor. Finally, the Speed Sensor app can update the Speed Sensor when new firmware is available.

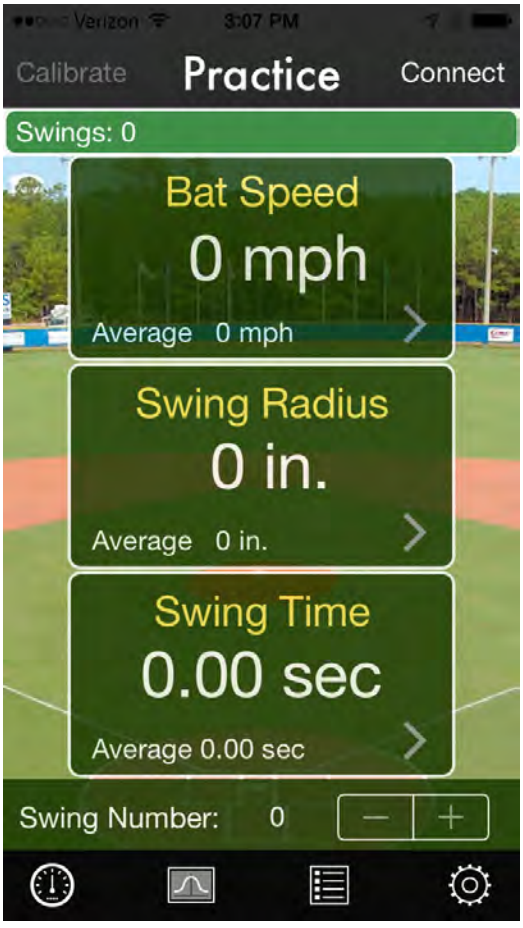
Main Screen View



Calibrate

Calibrating your Speed Sensor provides the most accurate results.
From the Main Screen View.
Place Speed Sensor on a horizontal surface. You may have to unhook the strap and lay it flat for the Speed Sensor to rest on its strap holder.
Turn on the Speed Sensor, connect to the Speed Sensor.
When Speed Sensor is ready, indicated by blinking red light on status bar, press Calibrate.

Used to calibrate Speed Sensor



Used to Connect to Speed Sensor

Speed Sensor App

Graph View
Display the accelerometer (red line) and swing Radius (white line) profile of the swing currently selected by the swing selector. Swing Number indicates the currently selected swing.

The graph can be expanded and contracted using the rotate selector.

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Rotate Selector

Current Selected Swing

Swing Selector

Speed Sensor App

Comparison View

Comparison View displays the current swing, the previous swing and the best result for all of the previous swings.

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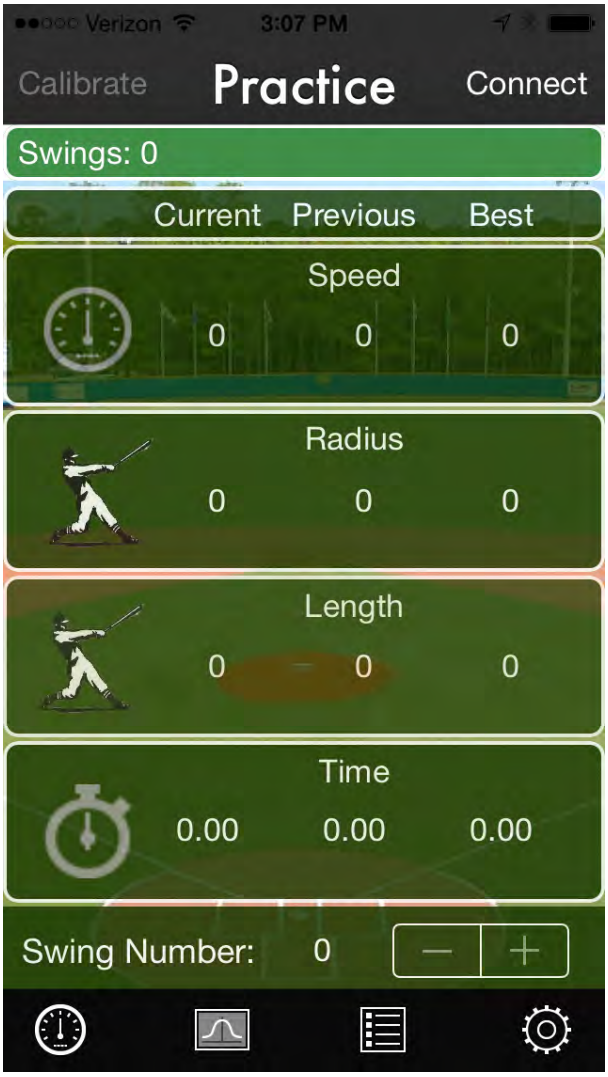

Speed Sensor App

Top Level Settiings View

Top Level Settings View provides access to Speed Sensor App and Speed Sensor settings. Select Batter, Select favorite bat and Select level of play are used to configure Speed Sensor App settings. Configuration & Update is used to configure Speed Sensor settings.

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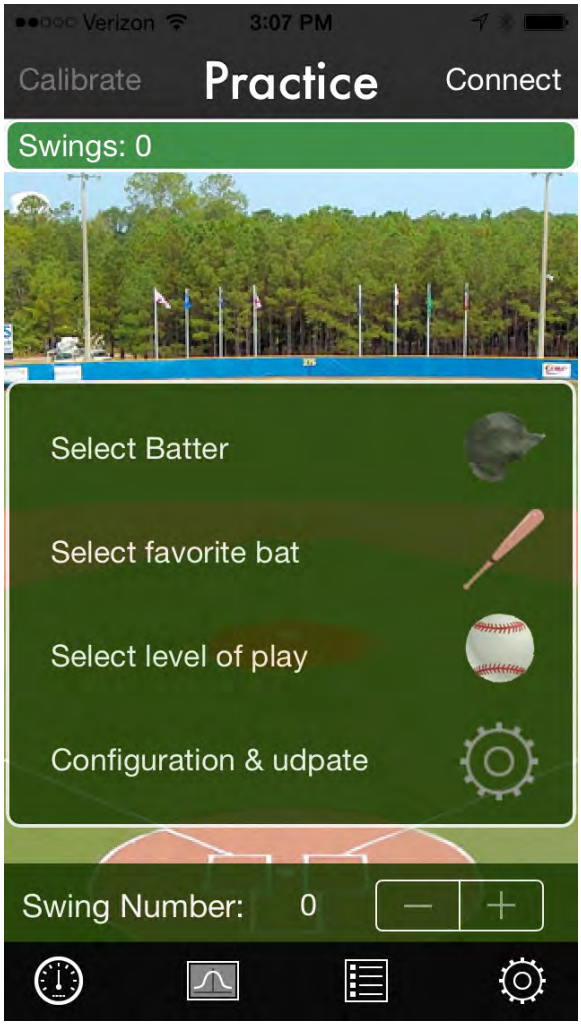

Speed Sensor App

Selecting your favorite bat

Use the Add Bat button to access the Add Bat dialog to add your own bat and set its characteristics, weigh, length, bat performance factor and type (wood, aluminum).

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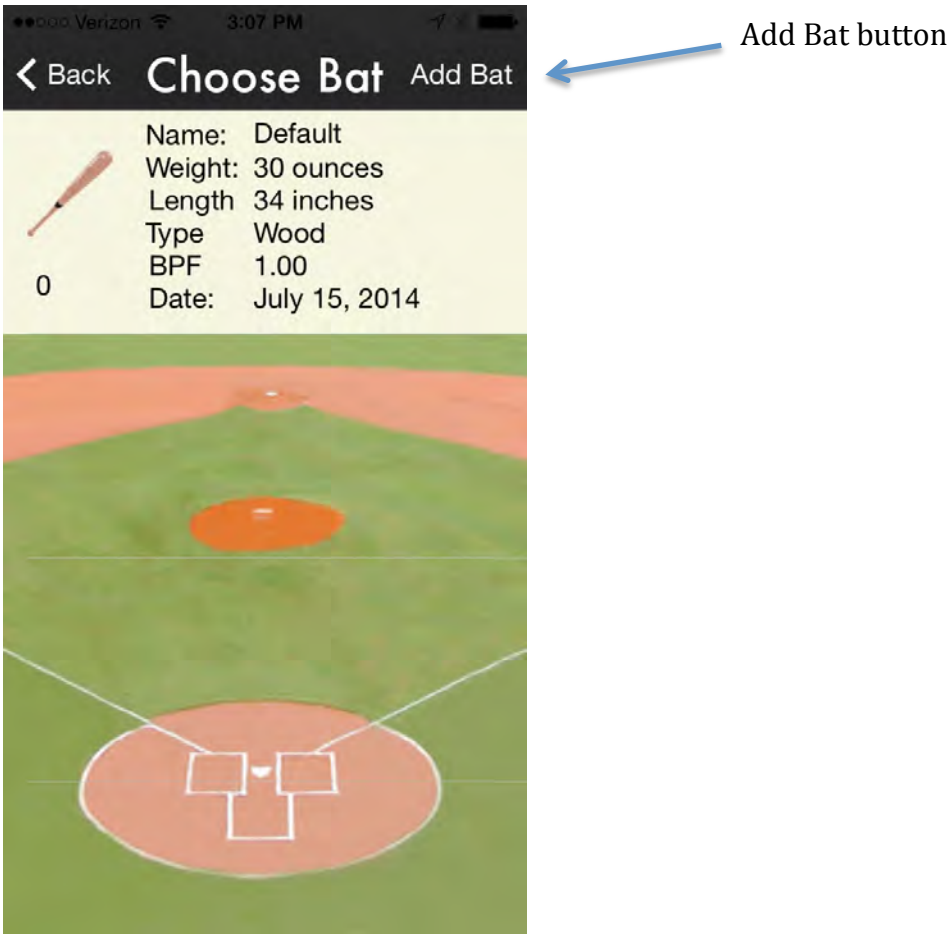

Add Bat button

Speed Sensor App

Selecting level of play

Select level of play by touching one the choices shown in the view.

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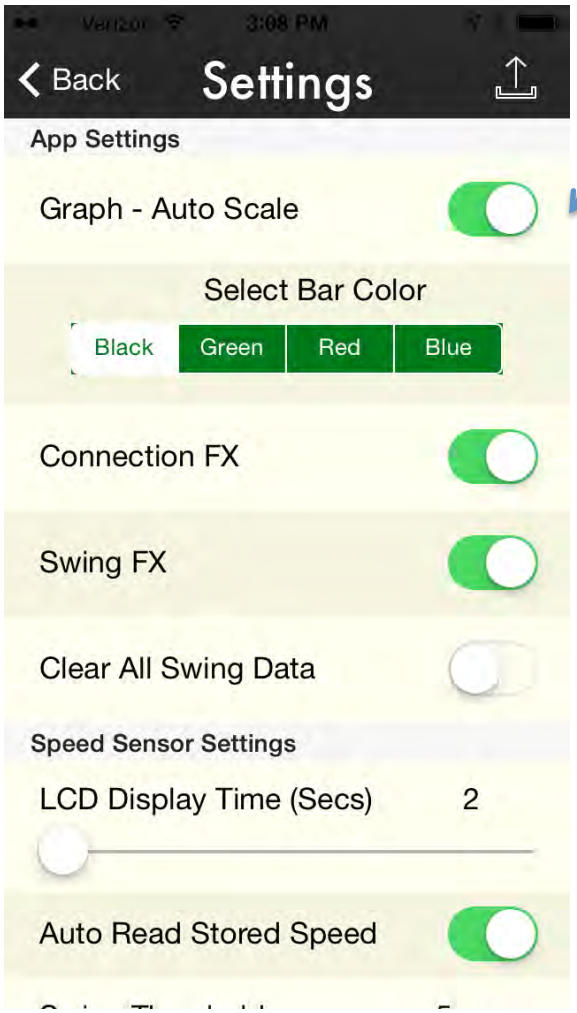
Speed Sensor App

Speed Sensor App Settings



Graph – Auto Scale: Scales the data received from the Speed Sensor for easier viewing.

Change Title Bar Color

Turn on/off sound effects for Connection and Swings

Clears all swing data stored in Speed Sensor app.

Changes display time of LCD and determines time between swings.

Enables automatic reading Of swing data stored in Speed Sensor

Speed Sensor App

Speed Sensor Settings

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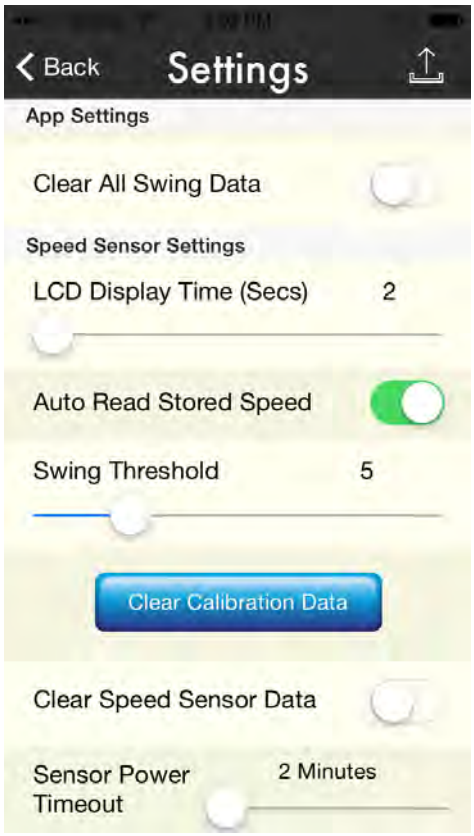


Sets sensitivity of Speed Sensor For detecting swings

Clears calibration data in Speed Sensor

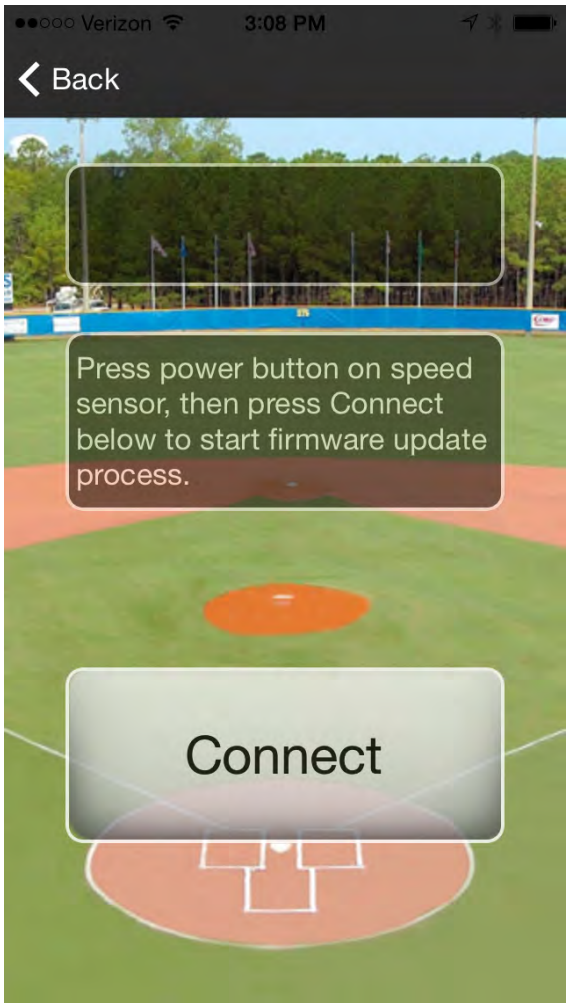
Clears all stored swing data In Speed Sensor

Sets how long Speed Sensor Should wait without detecting a Swing before auto powering down.

Firmware Update

Firmware Update is used to update the Speed Sensor with new firmware.
Procedure

1. Turn on Speed Sensor
2. Navigate to the Speed Sensor app Firmware Update Screen
3. Press Connect button on Firmware Update Screen
4. A dialog will appear that says “Wait for SpeedSensorBoot” message
5. The SpeedSensorBoot message will appear in the top notification view
6. When SpeedSensorBoot appears, press Dismiss on the dialog.
7. Press Select file & Update button
8. Select Internal Image, then select .bin file
9. Firmware will take just over 3 minutes to download.
10. When download is complete, turn on theSpeed Sensor and re-connect on the view screen that appears
11. Note the firmware Rev number has changed



Top notification view

Dialog views

Connect button
&
Select file & Update Button

Product Specification

- 2.4 GHz Bluetooth 4.0
- Low power – Up to 1 year of operation on a CR2032 battery
- 2 Character High Contrast LCD display

Warranty

One Year Limited Warranty for USA

Your Carinae Sports Speed Sensor (the “Product”), and only the Product is warranted by Carinae Sports, Inc. to be free from defects in workmanship or materials, under normal use, for a period of one year from the date of purchase. This limited warranty excludes damage resulting from normal wear and tear, defects or damage caused by mis-use, accident (including without limitation collision, fire and spillage of liquid), neglect, abuse, alteration, unusual stress, modification, improper or unauthorized repair, installation, wiring or testing, use with an unapproved device; use not in accordance with the documentation: and damage caused by the equipment with which the Product is used.