



Race-Keeper Predictive iDash User Guide v1.3
May 2014





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exclusively in soft format*



Document Version Control

Current version highlighted in red.

Document Version #	Release Date DD/MM/YY	Revision(s)
v1.0 – September 2012	11/09/12	Initial document Coincidental with release of Predictive iDash
V1.1 – September 2012	14/09/12	Added section to Course Database regarding operation of Predictive iDash at a new course
V1.2 – October 2012	04/10/12	Added Step 1b describing configuration update required to properly establish connection configuration between Unbreakable WiFi and Race-Keeper system; see page 6. Added more details for Apple and Droid device configuration/connection to Unbreakable WiFi; see pages 11 and 12. Added note regarding Swipe action to Navigation; see page 13. Added How to Set Your Default Page; see page 20. Added How to Exit Predictive iDash; see page 20.
V1.3 – May 2014	06/5/14	Added Manual entry for setting Start Finish line i) Enter Lat , Long, heading with keyboard, when not at the track ii) Use display devices' GPS and Compass to set Lat, Long and Heading for a new track, when standing at start line in pit lane. Improved Min corner/Max straight line speed sensing and displaying Display Track name on Lap timing page



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Race-Keeper Predictive iDash

Predictive iDash is Race-Keeper's lap timing software which delivers live in-car performance data and predictive lap times using innovative timing and velocity methods derived from 10Hz GPS and vehicle data.

Predictive iDash gives racers valuable real-time comparisons of current lap vs. best lap, and critical decision-making data to continue driving a qualifying lap or to throttle back to save precious resources, including tires and fuel, for the next lap or session. With predictive lap times and min corner/max straight data, racers also can test different lines, different corner entry speeds, and different gears to identify the optimal approach to the fastest lap.

Predictive iDash now allows 3 different methods for setting the start line. 1) Set on track, 2)Set on pit wall, 3) Set before arriving at track.

Predictive iDash works on Apple and Droid devices, with HD graphics that automatically resize to accommodate all display resolutions.

<u>Features</u>	<u>iDash 1.0</u>	<u>Predictive iDash</u>
Lap #	Yes	Yes
Current rolling lap time	Yes	Yes
Last lap time	Yes	Yes
Best lap time	Yes	Yes
Predicted lap time on current lap		Yes
Graphical time comparison to best recorded lap at track		Yes
Minimum corner speed		Yes
Max straight speed		Yes
Large text lap time		Yes
Enhanced track and pit timer		Yes
Track database saves start line position for all tracks visited		Yes
Set Start line position manually		Yes
Display Track name on Lap timing page		Yes
Outing database saves all lap times for every outing		Yes
User selected default page		Yes
User selectable data elements on the three live screens		Yes
RPM	Yes	Yes
Flashing RPM color shift bar	Yes	Yes
Configurable gear shift points	Yes	Yes
Gear #	Yes	Yes
MPH/KPH	Yes	Yes
Enhanced GPS signal strength		Yes
Enhanced on-board media capacity status		Yes
Enhanced vehicle battery status		Yes
Stored track sessions and lap times on device		Yes

What You Need

- Race-Keeper video data system
- Predictive iDash application download for free from [Apple iTunes](#) or [Google Play](#)
- Predictive iDash software license available at Race-Keeper web site (www.race-keeper.com/store)
- Unbreakable WiFi router + cables (shipped to you) to connect the router to Race-Keeper
- Display device (use Race-Keeper's optional 7" High-Res Color Display or your own Apple iPhone/iPod Touch/iPad, Droid smartphone/tablet)



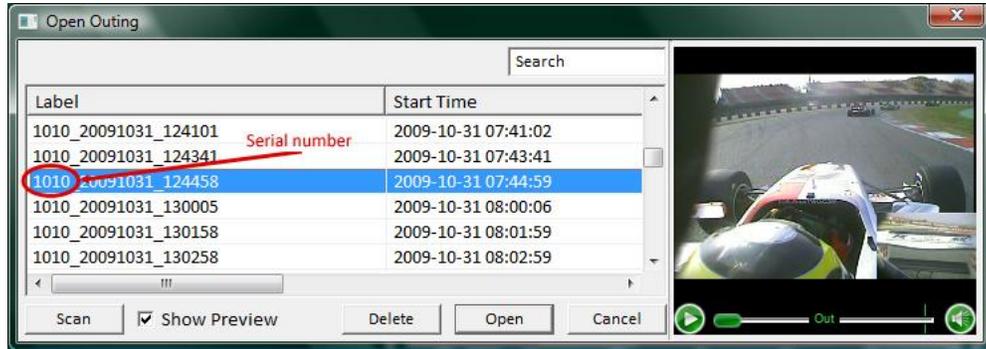
Before You Begin

Your Race-Keeper system serial number is required to activate your Race-Keeper iDash software license.

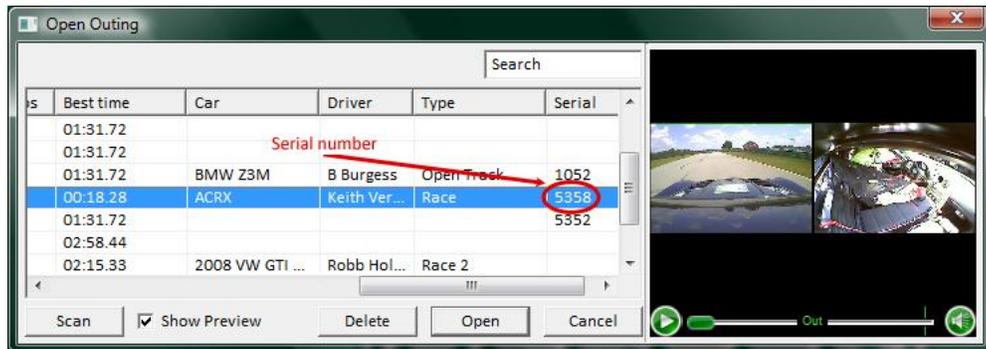
- Your serial number is four digits, starting with 1/2 (Race-Keeper SE) or 5/7 (Race-Keeper HE) or 9 (Race-Keeper Black).
- Your serial number is located on your Race-Keeper video data system *and* on all track session folders.

To quickly obtain your serial number, open Race-Keeper Comparo software and select File → Open Outing.

If you don't rename your track sessions before importing, your session names include your serial number.



You can also identify your serial number by scrolling to the right.





When You're Ready

Summary steps are listed below; however, we highly recommend that you follow the detailed instructions for each of the steps.

Note: To use your Apple or Droid device with Unbreakable WiFi, see details below for new customers.

Follow six steps to purchase, activate and update your system for Predictive iDash.

1. Update your Race-Keeper System Software and load WiFi configuration
2. Purchase Predictive iDash software license (at www.race-keeper.com/store)
3. Open Race-Keeper Comparo and activate Predictive iDash software license
4. Copy license file to a blank SD card or USB stick and copy to your Race-Keeper system
5. Connect Unbreakable WiFi to your Race-Keeper system
6. Download Predictive iDash from Apple iTunes or Google Play

1a. Update Your Race-Keeper System Software

- Open Race-Keeper Comparo software and select Help → Check for Race-Keeper System Updates OR
 - Go to www.race-keeper.com/support/downloads to download current system software to a **BLANK** SD card
- Power on your Race-Keeper video data system and wait until the system boots
- **Do not remove or interrupt power during the system software update process**
- Insert SD into the Race-Keeper system
- Transfer LED will illuminate solid for up to several minutes
- System should automatically reboot and continue the update sequence
- System update may require the system to update and restart twice
 - If system has been unresponsive for five minutes, reboot your Race-Keeper system manually and permit the system to continue updating
- When system has booted up and is ready, your system has been properly updated
- Delete system update file(s) from SD before recording a video data session to that media

1b. Configure Your Race-Keeper System

- To properly establish the connection between Unbreakable WiFi and your Race-Keeper system, you need to configure your Race-Keeper system using a configuration file, available at www.race-keeper.com/support/downloads.
- Download and unzip the Predictive iDash System Configuration File and copy the file to a **BLANK** SD card
- Insert SD with the configuration file into the Race-Keeper system
- Transfer LED will illuminate momentarily, system will be ready (i.e., no reboot is required)



2. Purchase Predictive iDash Software License

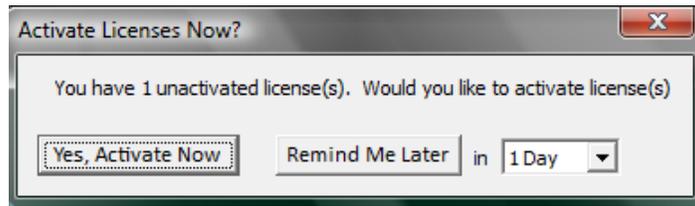
- Go to the Race-Keeper web site store (www.race-keeper.com/store)



- Select and purchase one of the following:
 - Predictive iDash: Software License + Unbreakable WiFi (www.race-keeper.com/idash_license_plus_unbreakableWiFi)
- Upon purchase, Predictive iDash software license will be available in Race-Keeper Comparo
- We will ship the Unbreakable WiFi router to you

3. Open Race-Keeper Comparo and Activate Race-Keeper iDash Software License

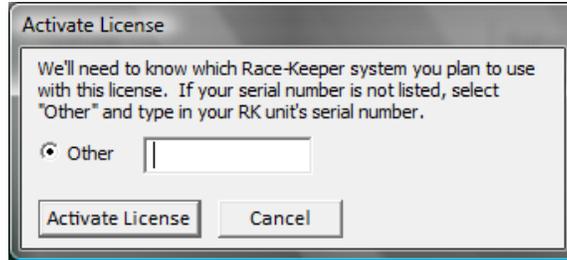
- Open Race-Keeper Comparo and follow instructions to activate your iDash software license using your Race-Keeper serial number
- Note: If Race-Keeper Comparo doesn't display an alert about licensing when the application starts, select Configure → License Manager and enter your Race-Keeper.com username and password when prompted
- When Race-Keeper displays the following prompt, Select "Yes, Activate Now"



- When Race-Keeper displays the following prompt, click on the license name and then click on "Activate License"



- When Race-Keeper displays the following prompt, enter the serial number from your Race-Keeper video data system and then click on "Activate License"



- Note: The easiest method to determine your serial number is to navigate to one of your recorded track sessions; your serial number is always the first four digits of every folder name. The Race-Keeper serial number also is printed on the bottom on your Race-Keeper video data system.
- When Race-Keeper displays the following prompt, click on “Download License” to download the update file to a **BLANK** SD card or USB stick.



4. Copy License File to Your Race-Keeper System

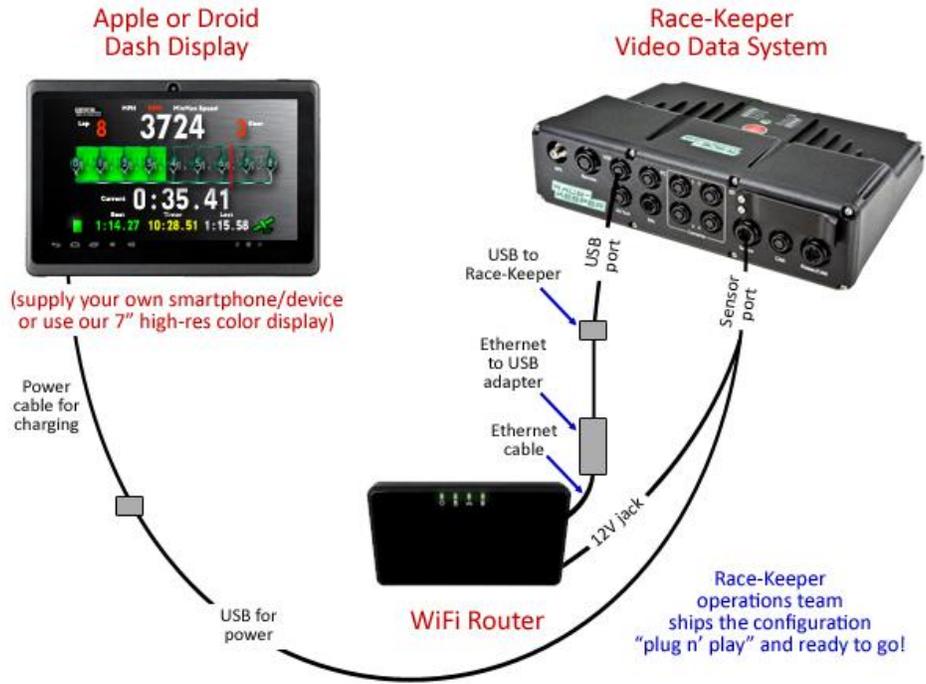
- Power on your Race-Keeper video data system and wait until the system boots
- Insert the SD card or USB stick with **only** the iDash license file into the Race-Keeper system
 - Note: The Transfer LED will illuminate momentarily when the Race-Keeper system copies the iDash license file from the SD card or USB stick
- **Reboot your Race-Keeper system**

5. Attach Unbreakable WiFi to Race-Keeper System

- Attach Unbreakable WiFi router to your Race-Keeper system
 - If you have a Race-Keeper SE system (green), plug the adapter into an available USB port
 - If you have a Race-Keeper HE/Black system (black), attach the provided cable to the USB connector and then attach the WiFi adapter to the USB connector



- See interconnection diagram below

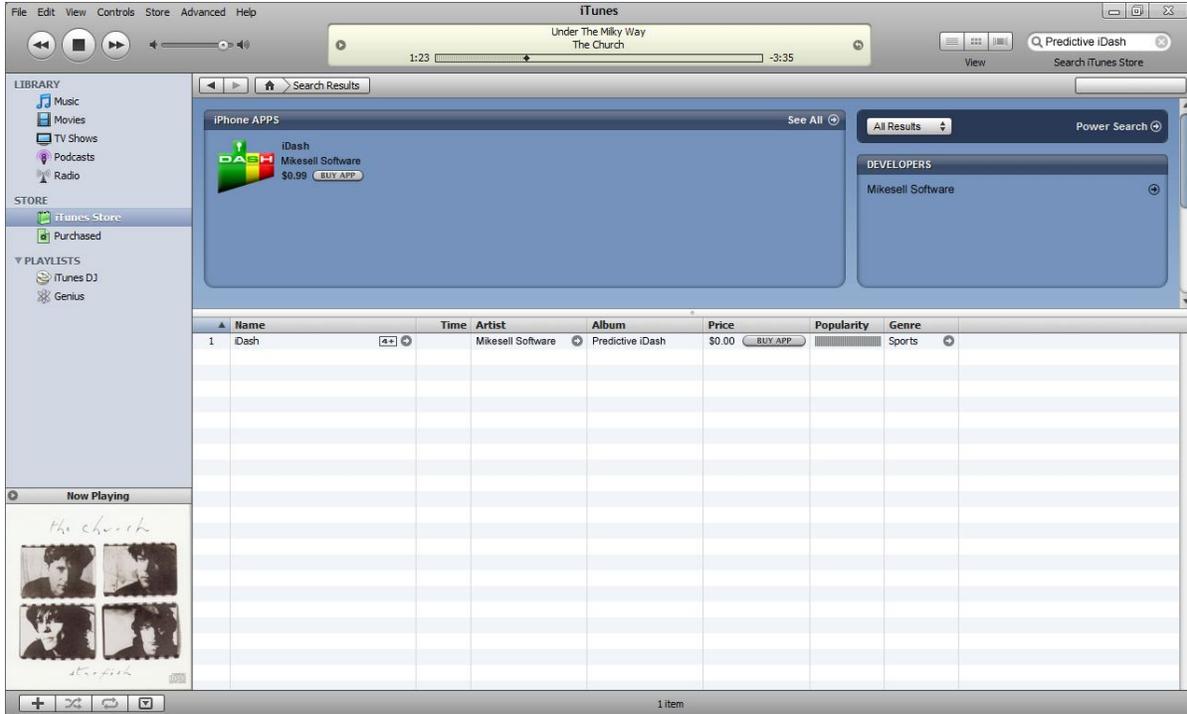


- Reboot your Race-Keeper system

6. Download Race-Keeper iDash

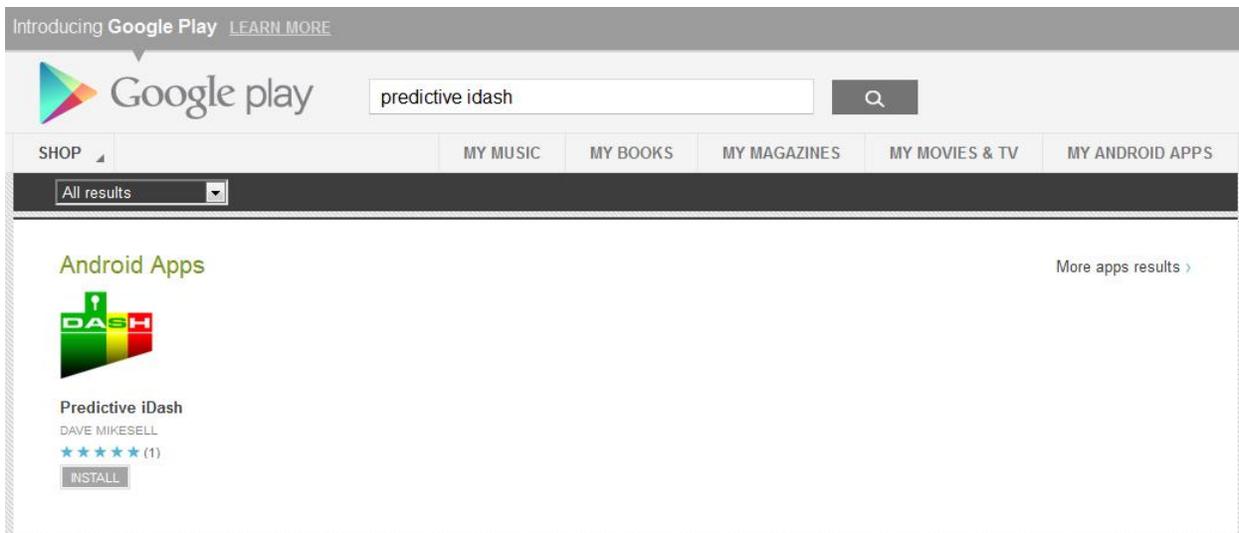
Apple iTunes

- Open Apple iTunes on your Apple computer or via your Apple iPhone or Apple iPod Touch
- Search for Predictive iDash, click “Buy App,” and download to your device



Google Play Store

- Open Google Play Store via your Droid smartphone or tablet or www.play.google.com
- Search for Predictive iDash then Click “Buy App” and download to your device





Configure Your Display Device

This section assumes that you are using your own Apple or Droid display device with Predictive iDash. If you are using Unbreakable WiFi + Race-Keeper 7" High-res Color Display, which are shipped pre-configured to instantly connect to Race-Keeper, please disregard this section.

Configure Your Apple Device

With your Race-Keeper system on and transmitting data to your Apple iPod, iPhone, or iPad, you can configure your device to use Race-Keeper data.

- In Settings, select General, then Auto-Lock and set to "Never."
 - Auto-lock can cause connection problems even AFTER the device has been unlocked again
- In Settings, select Wi-Fi and confirm that Wi-Fi is switched ON
 - If you are using an iPhone, select Airplane mode, and then select WiFi to ON
- From Wi-Fi Networks, select Race-Keeper (serial number of the Unbreakable WiFi device will be displayed; serial number is located on the label of your Unbreakable WiFi)
 - Turn off the Automatically Sign In option (This option is not required for direct streaming from Race-Keeper)
 - Set "Ask to Join Networks" to OFF



- Connect to WiFi network
 - Select the Race-Keeper WiFi network whose last 3 digits match the serial number on the unbreakable WiFi device, and connect to that network
- Exit Settings and then launch iDash

Configure Your Droid Device

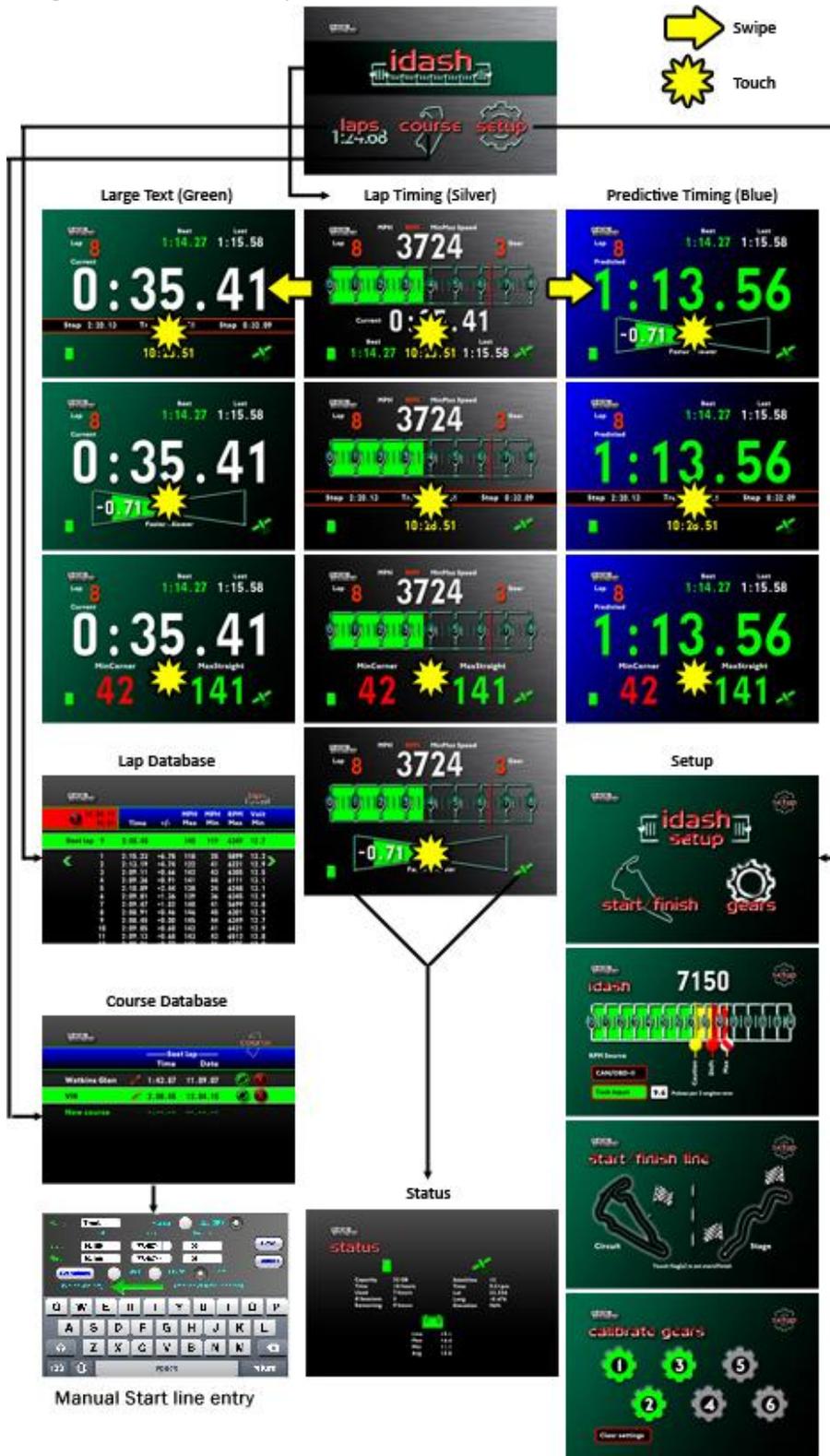
With your Race-Keeper system on and transmitting data to your Droid device, you can configure your device to use Race-Keeper data.

- In Settings, select Display, then Screen timeout, set to "Never"
 - Screen timeout can cause connection problems even AFTER the device has been unlocked again
- In Settings, select Wireless Networks and confirm that Wi-Fi is switched ON
 - If you are using a device with Airplane mode, select WiFi to ON
- From Wi-Fi Networks, select your Race-Keeper (serial number of the Unbreakable WiFi device will be displayed; serial number is located on the label of your Unbreakable WiFi)
- Exit Settings and then launch iDash



Predictive iDash Navigation

Note: To swipe between pages, touch the center of the screen and swipe smoothly, left or right; the page will change at the end of the swipe motion.





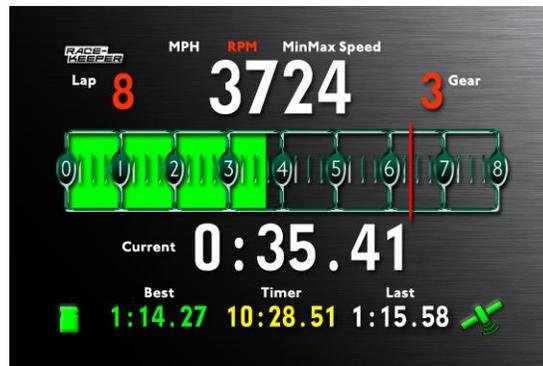
Predictive iDash Pages

[Home](#)



- iDash takes you to main lap timing displays
- laps takes you to your lap timing database, archived by track session
- course takes you to your tracks database, where you can see best lap time, edit track name, set Start Line
- setup takes you to the main setup page (flash bar, RPM input, start-finish line(s), gears)

[Lap Timing Display with Rev bar](#)



- Tap and hold lap number for three seconds to reset to zero and end the current lap session.
- Tap MPH/KPH to toggle speed unit.
- Tap lap time to toggle alternative displays: session timer, min corner/max straight speeds, predictive.
- Swipe left for predicted lap times (blue).
- Swipe right for lap times (green).
- Touch for media status, for GPS status (+ voltage).
- Touch Race-Keeper logo to return to the Home Page.

[Lap Timing with rev bar Alternative Displays](#)





Lap Timing Displays (Green)



- Touch bottom half to toggle alternative displays: session timer, min corner/max straight speeds, predictive.
- Swipe left for standard lap time displays (silver).
- Touch for media status, for GPS status (+ voltage).
- Touch Race-Keeper logo to return to the Home Page.

Predictive Lap Timing Displays (Blue)

Predicted lap times are based on driving to this point on the lap compared to the best lap for this course.

shows time ahead (green) or behind (red) best lap.



- Touch bottom half to toggle alternative displays: session timer, min corner/max straight speeds, predictive.
- Swipe right for standard lap time displays (silver).
- Touch for media status, for GPS status (+ voltage).
- Touch Race-Keeper logo to return to the Home Page.



Laps Database

	Time	+/-	MPH Max	MPH Min	RPM Max	Volt Min
Best lap	2:08.45		145	119	6349	12.7
1	2:15.23	+6.78	118	45	5899	13.2
2	2:13.19	+4.74	122	89	6221	12.9
3	2:09.11	+0.66	142	110	6305	12.5
4	2:09.36	+0.91	141	105	6111	13.1
5	2:10.89	+2.44	138	107	6248	13.1
6	2:09.81	+1.36	139	110	6345	12.9
7	2:09.47	+1.02	140	116	5699	12.8
8	2:08.91	+0.46	146	121	6301	12.9
9	2:08.45	+0.00	145	119	6349	12.7
10	2:09.05	+0.60	142	118	6421	12.9
11	2:09.13	+0.68	143	119	6512	12.8

- Touch to delete the displayed track session.
- Touch (left) or (right) for other available track sessions.
- Swipe up to view all laps.
- Press end session now to end and save a track session.

Note: a session will automatically end after five minutes if vehicle is stationary.

If RPM is not displayed, consider adding an RPM data source (e.g. OBDII, tach input, CAN).

Course Database (Update in v2.070)

Course Name	Best lap Time	Date
Watkins Glen	1:43.87	11.09.07
VIR	2.08.45	12.04.10
New course	--:--	--:--

- Touch “New course” to add a course.
- Touch to edit course name, Set or edit start GPS line coordinates and heading
- Touch to delete best lap time.
- Touch to delete a course (and all related track sessions).
- Swipe up to view all courses.

When you’re at a New Course (New features for version 2.070)

At a new course, turn on Race-Keeper and launch Predictive iDash; when Predictive iDash launches and acquires GPS data from the Race-Keeper system, the application will alert you if you are at a new location and will automatically generate a new course. Click OK and you will be taken to the Course Database page, where you can rename your new course; click on the to rename to your current track.

The name of the selected track will appear on the main timing page, to confirm you have selected the intended track.

Setting Start line at a new track

Option 1: Set Start line On Track



When you're initially on track, when you cross the start/finish line, click the flag on the Start/Finish Setup page; the start line is saved in the track data base for the course. Note: If you set the Lap Timing Display as your default page (hold the Race-Keeper logo down for 6 seconds on the page you want as the default page) after setting the start line, Predictive iDash will automatically navigate back to the Lap Timing Display.

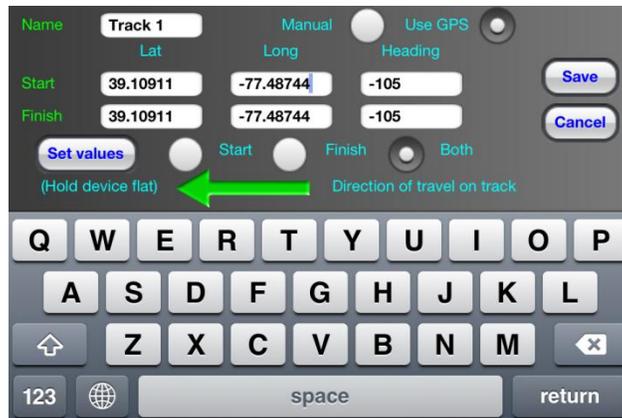
Option 2: Use GPS and Compass in display device (New for v2.070)

Stand at the end of the start line in pit lane and hold your GPS and Compass enabled display flat with the top of the display pointing down the track towards turn 1.

In Predictive iDash app, go to the Track database page, and Click on the  to set the start line coordinates. This page appears:



Select **Use GPS**, and select **Both** if you are racing on a closed circuit. This will set the same coordinates for Start and Finish position.



Note the green arrow on the coordinates page, this indicates the orientation of the display device so the Heading angle of the track at the start line is correct.

Wait for the displays stand alone GPS and Compass get a good lock and to then automatically fill in the Lat, Long and Heading values into the fields on the page.

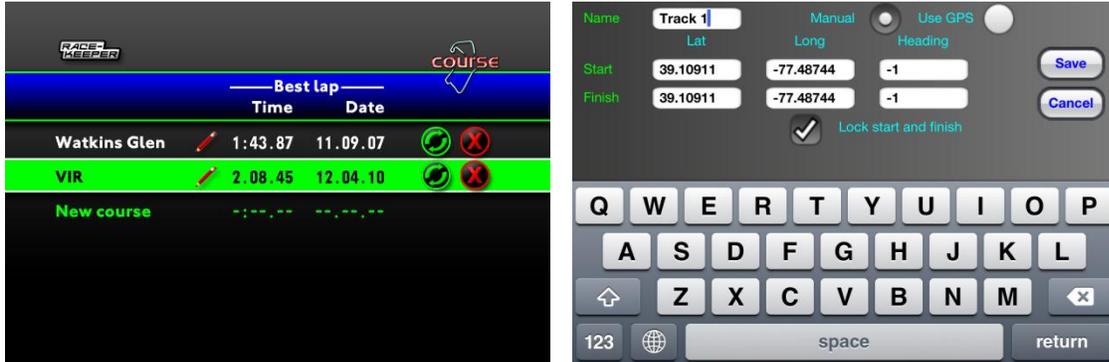
Once the values are set and are steady (Not drifting / changing) , tap **Save** to store the start line position for this track.



Option 3: Manual entry of start line GPS coordinates and heading (New for v2.070)

It is now possible to set the start line before you get to the track. On the Track coordinates page the GPS latitude and longitude and heading can be entered manually using the keyboard.

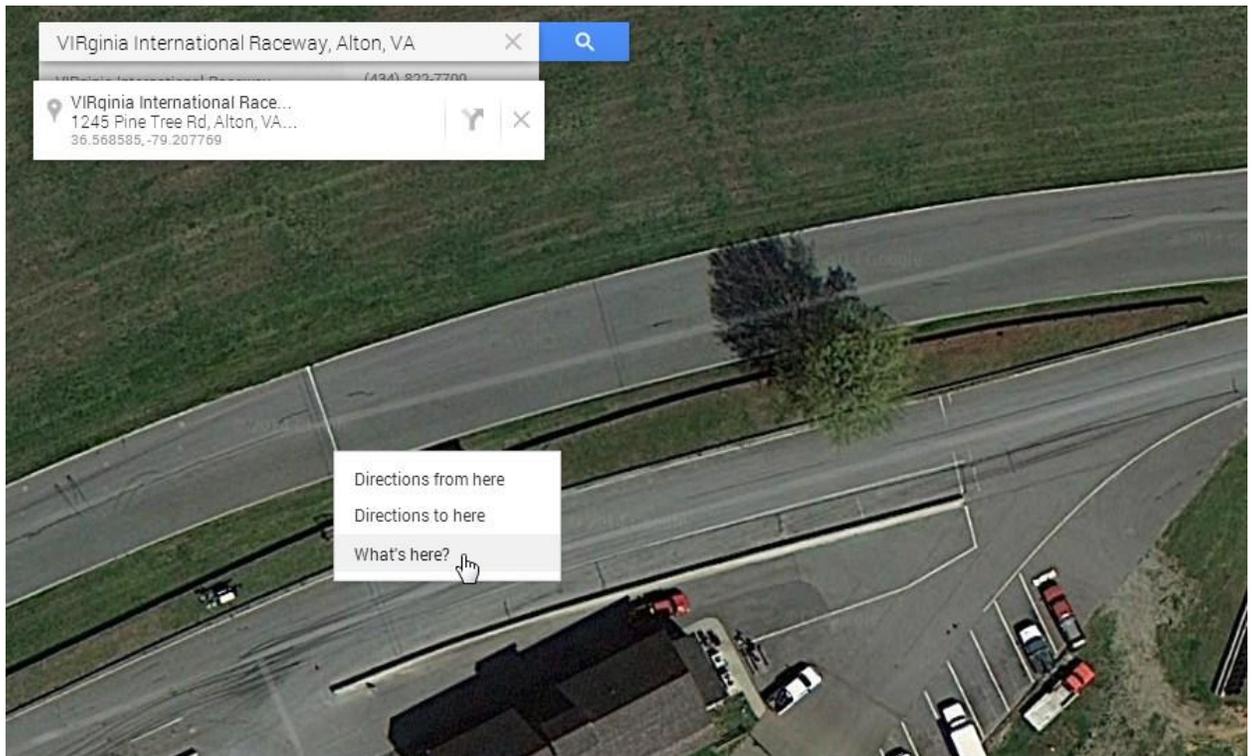
Navigate to the Course Database page, and click **New Course** to create the new track you will be visiting next. and Click on the  to set new track name and the start line coordinates.



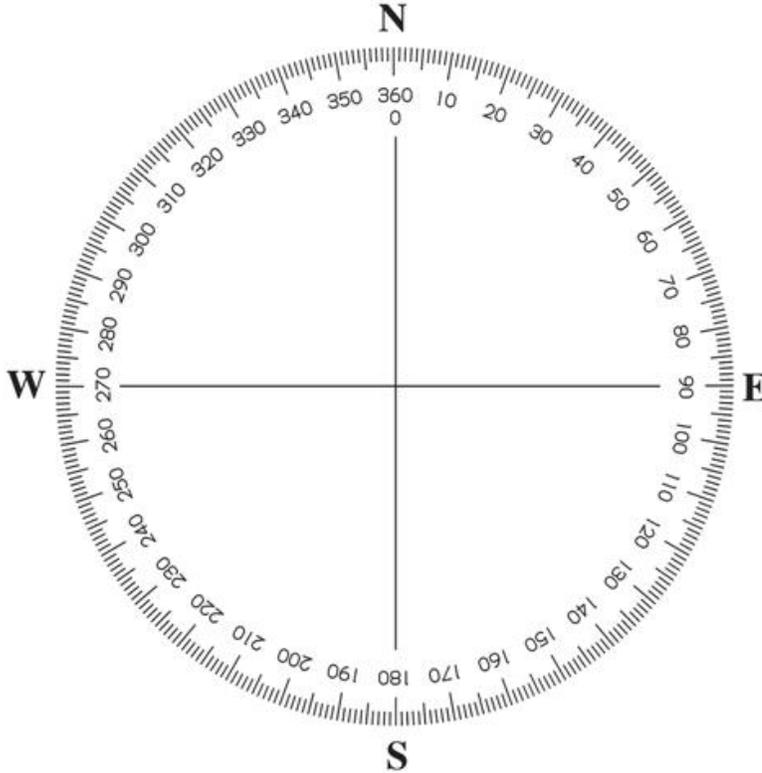
First, edit the track name.

Then find the Lat and Long coordinates and the heading for the start line at the new track. Using Google Maps is a simple way to find these coordinates. There are other websites that share start line coordinates. In this example we will use Google maps to find the coordinates for the start line at VIR.

- 1) Open Google maps and search for the track
- 2) Select Earth to show the satellite view.
- 3) Locate and zoom in on the start line at the track



- 4) Right-click EXACTLY on the start line on the racing line, then in the box that opens select What's Here?; the coordinates for the start line are shown in the top left of the screen. Copy those latitude (first number) and Longitude numbers into the corresponding fields in the Predictive iDash coordinates page.
- 5) Now find the Heading angle of a vehicle as it crosses the start line. Use a compass graphic, like the one below, to estimate the Heading angle of the track from the start line towards turn one. Enter that Heading angle into the field in Predictive iDash



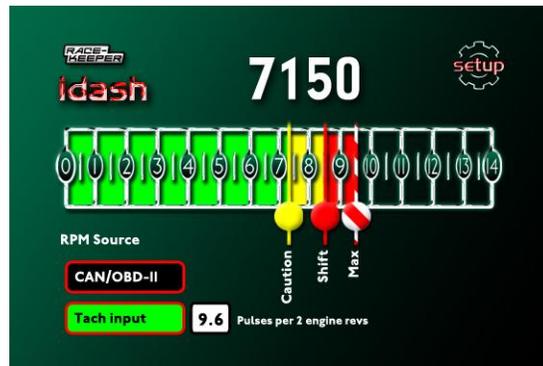
- 6) For VIR the start line data is. Lat: 36.568585, Long: -79.207769 Heading: 70

Setup



- Touch iDash Setup to configure your iDash (caution, shift, and max RPM limits, RPM source).
- Touch start/finish to select track type and start/finish (circuit or stage and set start/finish line(s)).
- Touch gears to calibrate your gears.

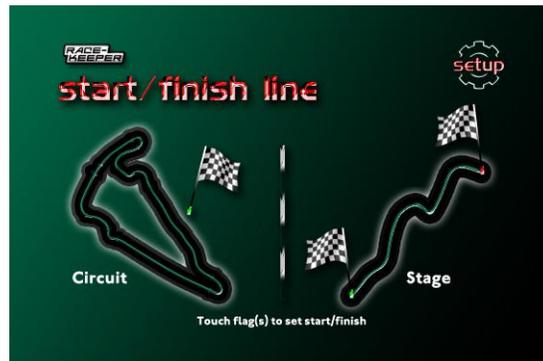
RPM Display Setup



- Grab and drag markers to set Caution, Shift, and Max RPMs.
 - On track, when the engine RPM reaches the Shift value, the Predictive iDash screen will flash RED rapidly indicating it's time to shift
- Drag max marker to right to increase the RPM scale.
- Touch CAN/OBD-II or Tach input buttons to select RPM source.
- Touch pulse box to set pulses per 2 engine revs.

Start/Finish Line Setup

(Original method. Also see section “When you’re at a New Course (New features for version 2.070)”



This page requires configuration while the vehicle is in operation and, therefore, requires an assistant. the vehicle must be in operation (i.e., driving on the track at the proper start (and finish) point(s) to properly register vehicle heading. Race-Keeper expressly discourages configuration without an assistant.

- Drive your vehicle over the start line.
- Touch  to set start/finish line for circuits.
- If you’re driving a circuit, you’re finished.
- For stage, drive to finish line.
- Touch  to set finish line for stages.
- Start line will be saved in iDash for this circuit or stage.

Gear Setup

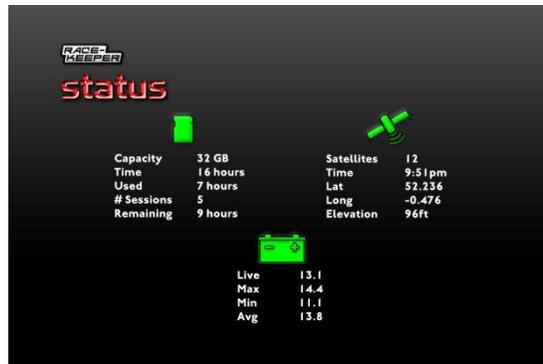


This page requires configuration while the vehicle is in operation and, therefore, requires an assistant. The vehicle must be in operation (i.e., driving on a quiet safe road where each gear can be selected and held for a few seconds).

Note: RPM data is required (gears calculated from MPH/RPM ratio).

- Drive vehicle and touch gear icon(s) for corresponding gears.
- Calibrated gears are green , uncalibrated gears are gray .
- Any gear can be configured in any sequence.
- Touch “Clear settings” to delete calibrations.

Status



 shows media status:

- Total capacity of inserted media
- Total recording time
- Number of sessions recorded to the inserted media device
- Estimated time remaining.

 shows GPS satellite status:

- Number of satellites acquired
- Current latitude
- Longitude
- Elevation



- GPS time



section shows battery voltage status:

- Current battery voltage
- Maximum and Minimum on this outing
- Average during this outing

How to Set Your Default Page

Predictive iDash gives you the power to set your preferred Default page, which reduces the number of screens required to navigate to access the page that you especially like to use when operating Predictive iDash.

When you launch Predictive iDash after setting a Default page, the application navigates directly to your Default page; the application also navigates to your Default page after setting the start line on circuit.

To set your Default page, navigate to the page you want as Default, then touch and hold the Race-Keeper logo in the top left corner; after about three seconds, Predictive iDash will display a confirmation window informing you that the page has been established as your Default.

To select a different Default page, follow the simple procedure above again on a different page.

How to Exit Predictive iDash

Apple devices

Press the Home button; when Predictive iDash has closed, double-click the Home button and scroll across and press/hold the Predictive iDash icon until a red cross appears at the top of the icon. Tap the red cross to close the application.

Android devices

Press the Back button.

Don't press the Home button; pressing the Home button suspends (but doesn't close) Predictive iDash.

Troubleshooting Guide

Make sure that...

- Your Race-Keeper system is fully booted and the WiFi LED on the attached WiFi device is solid green; the Wi-Fi network broadcasted by the Race-Keeper should be visible on any Wi-Fi-enabled device, including laptop computers.
- Auto-Lock or screen timeout is disabled on your mobile device.
- Auto-Join is enabled on the Race-Keeper Wi-Fi setting.
- If you have any questions contact us at operations@race-keeper.com or (571) 203-1420.