iPhone App and Watch App User Guide

This user guide along with the SplitFast Quick Start Guide provides instructions on how to use the SplitFast iPhone App and Apple Watch App together with SplitFast Bluetooth Athlete Timing Gates to measure your performance so that you can determine your strong and weak areas, allowing you to optimize and focus your training. Please read the Quick Start Guide to assemble and configure your timing Gates. This user guide explains each feature of the system in more detail to help you get the most out of your SplitFast system.

The SplitFast iPhone App and SplitFast Apple Watch App are available for free from the App store.

WARNING: The information presented on the SplitFast Website, SplitFast User Guides, and SplitFast Apps is for informational purposes only and does not replace the advice of a health care professional. Always seek medical advice before beginning any new physical activity.

WARNING: The SplitFast Timing Gate contains a laser emitter to detect athlete motion. The emitter produces LASER RADIATION. Do not stare into the beam or view directly with optical instruments

System Description

SplitFast is a system for precisely measuring athletic performance between a starting position and a finish line with up to 10 intermediate Gates, which provide split measurements.

SplitFast can operate in multiple training modes, each designed to measure different aspects of an athlete's performance.

When using the SplitFast system a timed test is called a Trial.

SplitFast uses the iPhone accelerometer to sense the athlete's motion to begin each trial.

As the athlete passes each gate the time is automatically passed to the iPhone.

The system can store up to 1000 trials, which can be used to track performance over time.

SplitFast can be used to analyze an athlete's performance to detect weak points which can be used to tailor a training program.

Running a basic Trial

The most basic Trial includes an iPhone running the SplitFast App and one SplitFast Gate.

A. Configuring the SplitFast App

1. Select Trial at the bottom of the App.
2. Select Settings.
3. Under Training Mode select Race from the drop-down menu.
4. Select Start Gun Enabled by moving the switch to the right.
5. Select an Auto-arm delay between 2 and 10 second on the drop-down menu.
6. Select motion sensitivity between 1 and 10 with 1 being the least sensitive and 10 being the most sensitive.
7. Select Gate proximity sensitivity between 1m and 30m on the drop-down menu. On a crowded track use a lower range.
8. Select a Bluetooth Group ID between 0 and 250
9. Tap trial at the top of the screen to return to Trial page

B. Preparing A SplitFast Gate

1. Turn On a SplitFast Gate. A short press of the Gate power button turns the Gate On. Holding the button down for 2 seconds and releasing turns the Gate Off.
2. When the Gate status LED is blinking slowly, launch the SplitFast iPhone App and Tap Gates at the bottom of the trial page of the SplitFast App.
3. Select the SplitFast Gate that you want to use from the list of Gates displayed.
4. When a SplitFast gate is connected to for the first time a pin must be entered. The default pin is 123456. Instructions for setting a different pin are given under Setting A User Pin On The Gates below. The App will remember your PIN and use it automatically for future connections.
5. Once the App connects to a Gate the Gate status LED will blink quickly and the Gate settings can be modified.
6. Select the distance from the start line that the gate will be placed.
7. Select Finish from the Gate Type drop down menu.
8. Ensure that the Bluetooth Group ID matches the Bluetooth Group ID that was chosen under the Trial Settings of the App.

C. Aiming the SplitFast Gate

1. Strap the SplitFast Reflective Arm Band to the athlete's arm closest to the SplitFast Gate. The SplitFast Gates emit a vertical laser line. When the reflector on the SplitFast Arm Band passes through the laser line, light is reflected back to the sensor on the gate stopping the timer.
2. To align the SplitFast Gate, place the Gate, standing on its tripod, at 90 degrees to the finish line with the laser shining across the finish line.
3. Angle the laser upward so that the center of the line is roughly pointing to the position that the Reflector on the Athlete's Arm Band will be when the athlete passes over the finish line. The Laser has an effective range between 1m and 4m in most conditions. The line is approximately 1m long at a distance of 3m

D. SplitFast Gate LEDs.

The SplitFast Gates have 2 green LEDs on the top. The one closest to the on/off switch will flash every 3 seconds when the gate is powered on. The second LED will light when the gate registers a reflection. On the Gates page of the App a reflection will be shown as

the symbol ((🏃)) In this situation somebody or something is obscuring the gate, and a trial should not be commenced until the obstacle has been removed. A clear gate will be shown by the symbol ((…..)) signifying that the gate is unobstructed and ready to be used for a trial.

E. Preparing the Athlete

1. Ensure that the athlete is wearing the SplitFast Arm Band on the arm closest to the gate.
2. Ensure that the iPhone is securely attached to the athlete's body using the SplitFast iPhone backpack or vest.
3. The SplitFast iPhone App must be running in the foreground on the iPhone during a trial. To configure the iPhone, go to Settings > Display and Brightness. Set Appearance to Light (do **not** select Dark Mode). Set Auto-Lock to a time longer than your trial. We recommend setting to Never.

F. Running A Trial

1. On the Trial page of the SplitFast App select New Trial. The athlete will be instructed to take their Mark.
2. The athlete then has between 2 and 10 seconds to move to the start line. This time can be configured under Auto-Arm delay on the settings page of the SplitFast App. The default time is 6 seconds.
3. The command "Set" is then given. The athlete should then take the set position. Any motion detected after 2 seconds, and before the starter pistol has sounded, will be recorded as a false start. If a false start is detected, two Starter Pistol shots will be heard and the trial will be automatically cancelled.
4. The Starter's Pistol will sound at a random time somewhere between 2.5 and 5 seconds after the "Set " command.
5. When the Starter's gun is heard the athlete should begin running as soon as possible.
6. The athlete's reaction time will appear on the screen of the SplitFast App.
7. When the athlete passes the finish Gate the finish time will also appear on the SplitFast App under the reaction time.

G. Results

Results may be viewed by selecting the Results page of the SplitFast App.

1. Individual trials are displayed from most recent at the top, to oldest at the bottom. The date and time of the trial is given on the left, followed by the trial number and finally the Mode of the trial.
2. The Trials displayed may be filtered using the Mode menu at the top of the Results page.
3. To graph any trial the tick should be selected on the right of the trial.
4. When a set of results are selected, Graph, Analysis, Delete and Share will be Enabled at the bottom of the page.
5. Select Graph. The reaction time and Finish time will be displayed on a Distance versus Time graph.
6. Detail of using the Graph, Analysis, Delete, and Share functions are given below.

Running A Trial With Multiple Gates.

SplitFast can record trials over any distance, using up to 9 intermediate, also known as split, gates.

Setting the SplitFast Gates to obtain Split times.

1. Turn off all the SplitFast Gates.
2. Turn on one SplitFast gate only. This Gate will appear in the list on the Gates page of the SplitFast App.
3. Select that gate by touching the Gate in the list.
4. Type the distance that the gate will be placed from the start line in the Distance space.
5. Select Split from the Gate Type drop down menu.
6. Select number 1 from the Gate ID drop down menu.
7. Ensure that the Bluetooth Group ID matches the Bluetooth Group ID selected under settings of the SplitFast App.
8. Turn on the second gate.
9. Select the gate.
10. Alter the gate distance to the appropriate distance from the start line.
11. Alter the gate type to Split.
12. Alter the gate number to 2.
13. Ensure that the Bluetooth Group ID matches the Bluetooth Group ID selected under settings of the SplitFast App.
14. Repeat steps 8-13 for each split gate while ensuring that the gate is give the correct distance from the start line, the correct gate number, and the Bluetooth Group ID matches the Bluetooth Group ID selected under settings of the SplitFast App.
15. Turn on the final gate. This will be the finish gate.
16. The steps to setting up the Finish gate are the same as steps 8-13 except that Finish will be selected from the drop down menu under Gate Type.

Understanding Training Modes.

SplitFast has different modes to help a wide variety of athletes improve their speed and agility. These are called Training modes, and this section explains the different options available and how to use them at the track.

Race

Race is the default training mode. It uses a Start signal generated by movement of the iPhone to begin the trial. The athlete then runs through 0 or more Split Gates and finally through a single Finish Gate. The trial is complete when the Finish Gate has been triggered.

Flying Start

In Flying Start mode, there is a single Start Gate used to start the trial. The athlete arms the system and then starts running. When the athlete breaks the laser beam of the Start Gate, the Trial timers will begin. The trial will end when the Finish Gate is triggered.
1. Training mode is switched to Flying Start.
2. Start gun should be disabled.
3. The first gate is moved to the starting line.
4. The first gate Type is changed to Start
5. The Finish gate is placed on the finish line
6. The Finish gate Type is changed to finish.

Shuttle

Shuttle mode uses a single Gate that acts as both the Start and Finish gate.
The timer begins as the athlete passes the gate the first time. The timer stops when the athlete returns and passes through the gate a second time. Start Gun should be disabled for this mode. Arming is performed by touching the Arm button.

Lap

Lap mode is used to measure performance when running consecutive laps around a track or velodrome. Each time the athlete passes the gate the Lap time will be recorded.
1. The Gate Type is set to Lap.
2. In settings the mode is set to Lap.
3. The trial begins when the athlete breaks the Lap gate the first time
4. The results of each Lap are recorded and displayed on the iPhone App.

Agility

To run agility tests the Mode is set to Race, then two or more gates are set to Gate Type Finish. The athlete will end the trial by triggering one of the multiple possible Finish Gates. This mode usually has a coach signal to the athlete as they are coming down the track, telling them which finish Gate to run through.
Starting the trial is the same as in Race Mode. The trial is complete when any one of the possible Finish Gates is triggered.

Understanding the Starting Gun Feature

The start gun function is used to simulate a realistic race environment. Giving meaning to the athletes recorded reaction time.

When Start Gun is selected, the iPhone will give commands the same as a real Starter. The athlete will be asked to "take their mark", then to take the "Set" position. The Starters Pistol then fires signaling the start of the trial. Try using Bluetooth earphones with the SplitFast App for a fantastic race experience!

The time that the athlete is given to take their mark can be varied from 2 to 10 seconds under Auto-arm delay in the settings page of the SplitFast App.
The time between the starters command to "Set" and the starters gun varies randomly between 2.5 and 5 seconds.

False Starts

When the starter gives the command to set, a grace period of 2 seconds is given to the athlete to take the set position. Any movement detected after this grace period and before the starters gun is fired, will trigger a false start which will be signified by a double shot of the starters pistol. The trial is automatically cancelled.

When the Start Gun is switched off the starter gives the command "on your mark" when the arm button is pressed. The command to "Set" is then given. The time between the commands "on your mark" and "set" may be altered on the Settings page under Auto-Arm delay.

Understanding the Proximity Setting Feature

On a busy track, athletes wandering past a gate may accidentally trigger its motion sensor. To minimize this risk, SplitFast uses a proximity sensor. Proximity may be

adjusted under Settings in the SplitFast App. As an example if 10m is selected in the Gate proximity drop down menu, the gate will only become active when the iPhone comes within 10m of the gate. Similarly, if 1m is selected, the gate will only become active when the iPhone comes within 1m of the gate! Due to variations in Bluetooth signals in different environments the distances are approximate. Try different settings to find the best configuration for a specific track.

Understanding Motion Sensitivity

SplitFast uses the iPhone accelerometer to detect movement of the athlete. The sensitivity of the accelerometer may be varied under Settings, Start Motion Sensitivity on the iPhone or Apple Watch apps. 1 is the lowest sensitivity and 10 is the highest. Selecting a sensitivity which is too high may produce false starts while selecting a sensitivity which is too low may fail to detect a start. Athletes should experiment with different settings to find the one that is best for them.

Using an Apple Watch with the iPhone.

A SplitFast App is available for the Apple Watch from the Apple App Store. It enables the user to conveniently change settings on the iPhone SplitFast App. It can also be used to prepare a trial and view results without having to touch the iPhone. It is important to understand that, for reasons of power management, the apple watch can not be used instead of the iPhone.

Switch on the SplitFast iPhone app then switch on the Apple Watch app. Tap Race or Motion on the watch, a screen will be shown displaying the options: Training Mode, Starting Gun, Motion Sensitivity, and Auto Arm Delay.

Tap on any of these options to alter the settings on the SplitFast iPhone App.
If the iPhone is running in Dark Mode or Power Saving Mode the Apple Watch will not be able to connect to the iPhone. The message "Session Error iPhone app is running in the background. Please move to foreground" will be displayed. The same message will be displayed if the SplitFast iPhone app is not switched on or the iPhone is switched off. Turn On the iPhone and start the SplitFast App to establish the connection between the iPhone and Watch Apps.

Results

Trial results can be viewed on the Results page. The trials are arranged from oldest at the bottom to newest at the top. For each trial, the Date, Time, Trial Number, and Mode are shown from left to right. To expand the trial, tap the trial to gain information from individual SplitFast Gates.

Plotting Trials

To plot a trial on a time versus distance graph tap the tick on the right side of the trial, then tap graph. Multiple trials may me graphed simultaneously by selecting them in the results list.

Analysis

SplitFast Uses a unique set of algorithms to detect weak points in an athlete's performance. In order to do this the athlete needs to perform a specific set of 3 trials so that the system has all the data that it needs.

To obtain data relating to the athletes start and acceleration a trial needs to be conducted in Race mode with the Start Gun enabled. A Split gate placed at the 10m mark and the Finish gate placed at 30m mark.

The second trial uses Flying start mode to determine the athlete's top speed. In Flying start Mode, switch off the Start Gun. A Start Gate is then place at 30m and the Finish gate is placed at 40m. This gives the athlete adequate time to accelerate to top speed. It is critical that the athlete is traveling at top speed when they pass through the Start gate.

The third trial also uses the Flying start mode. Switch off the Start Gun. The start gate is again placed at the 30m mark but the Finish gate is placed at the 90m mark. This data allows the system to calculate top speed endurance.

When all three of these trials have been performed, go to Results on the SplitFast iPhone App. Select the tick next to the three trials you wish to combine for analysis, then press Analysis. The analysis will tell you the strongest and weakest aspects of your performance. Armed with this knowledge you can view the blog articles to optimize your training to your needs.

Deleting a Result
To delete a trial, tap the tick on the right of the trial, then press delete.

Sharing Results
To share results via email, tap the tick to the right of the trials that you want to share. Then press the share button. An email will be generated with a CSV file attachment. Send the email to the desired recipients. CSV files can be opened in Apple Numbers and Microsoft Excel.

Setting A User Pin on The Gates
The first time a connection is made to a Gate from an iPhone App, the Gate asks for a 6 digit PIN number in order to connect. If the correct PIN is not provided, the Gate will not allow any connections or settings to be modified.

When the correct PIN is provided to a Gate, the iPhone will remember this number and use it again the next time it connects to the same Gate.

The factory default PIN is 123456. This can be changed to any 6 digit number.

To change the PIN, connect to a Gate by selecting it in the Gates list on the iPhone App, then tap the Set Admin PIN button. Enter a 6 digit code and reenter when requested. The Gate will now use your new PIN. Be sure to write it down. If you change phones or re-install the iPhone App in the future you will need your new PIN in order to change the Gate settings.

Updating the Gate Firmware

The Gate firmware can be updated to the latest version using the SplitFast App as follows:

1. Be sure your iPhone has access to the Internet and Bluetooth is turned on
2. Make sure the Gate batteries have more than 60% battery charge
3. Connect to the Gate from the SplitFast App
4. Tap the Firmware Update button
5. The App will check for the latest available firmware and indicate if a later version is available.
6. Tap the Install Firmware button to upgrade. Do not turn off the Gate during the update process