

SWIFT | **PERFORMANCE**

Installation and User Instructions

Swift DNA Timing and Training Systems

Hardware

- ZERO
- MOVE
- DUO
- NEO

Software and Apps

- SYNCRO
- SWIFT LABS



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May 2019

Version 1.01

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Document Revisions

Date	Version Number	Document Changes
14-07-20YY	1.0	Initial draft



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1. Introduction

1.1. Product Overview

Swift DNA systems merge state of the art sensing devices, mobile Apps for control/data collection and monitoring, and web-based applications for the management and reporting of athletic movement performance data.

2.1. Conventions Used in This Manual

The following style conventions are used in this document:

Bold

Names of product elements, commands, options, programs, processes, services, and utilities

Names of interface elements (such windows, dialog boxes, buttons, fields, and menus)

Interface elements the user selects, clicks, presses, or types

Italic

Publication titles referenced in text

Emphasis (for example a new term)

Variables

`Courier`

System output, such as an error message or script

URLs, complete paths, filenames, prompts, and syntax

User input variables

< > Angle brackets surround user-supplied values

[] Square brackets surround optional items

| Vertical bar indicates alternate selections - the bar means “or”



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3.1. Explanation of Safety Warnings

DANGER!

Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury

WARNING!

Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

CAUTION!

Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

4.1. Obtaining Documentation and Information

1.4.1. Internet

The latest version of the documentation is available at the following address:

<http://www.swiftperformance.com>

1.4.2. Documentation Feedback

If you are reading Swift Performance product documentation on the internet, any comments can be submitted on the support website. Comments can also be sent to info@swiftperformance.com

We appreciate your comments.



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1. Description of the product

1.1. Purpose of the Product

The Swift DNA timing system family consist of a number of hardware devices, utilizing optical and ultrasonic sensing techniques to monitor athletic performance at a macro level. These devices include the following, which will be discussed in detail further in this document.

- ZERO starting device
- MOVE First Movement starting device with ultrasonics
- DUO dual beam timing gate
- NEO dual beam timing gate with ultrasonics

These devices are controlled via an iOS app "SYNCRO".

Collected data may be synchronized with other mobile devices to registered and paying subscribers via our "SWIFT LABS" cloud service.

2.1. Process Overview

All DNA sensors are self-configuring, automatically setting up a local Wi-Fi network across which all devices, and the SYNCRO app communicate.



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3.1. Technical Data

All Swift DNA sensors utilize a common architecture, as such this section assumes commonality between products. Any differences occurring relate solely to the number and type of sensors used.

Electrical	Description
WIFI	2.4GHZ 802.11b Max 18dbm Transmit power (Region adjusted) FCC/CE certified
Bluetooth	Bluetooth LE4.0 – FCC/CE Certified
Batteries	2 x 3.7V 3600mah Lithium Ion batteries
Battery Charging	Wireless Via supplied wireless charging puck and adaptors
Optical Sensors	640nM modulated visible red laser Class 3R
Ultrasonic Sensors	40khz pulsed Piezoelectric Transducers
Visual Strobes	High Intensity RGB Led array
Audio	105db Piezoelectric siren



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4.1. Product Compliance

Swift Products are in compliance with the following regulations:

- **LASER COMPLIANCE**
Complies with IEC/EN 60825-1:2014 and
21 CFR 1040.10 and 1040.11 except for Deviations pursuant to Laser Notice No. 50,
Date: June 24, 2007
- **WIFI COMPLIANCE**
FCC ID: YKD-25STW4100-029 IC: FCC Rule Part: 15.24
- **BLUETOOTH COMPLIANCE**
FCC, ISED, MIC, CE, KC

5.1. Sensors

ZERO

Designed entirely for use on the ground, to detect the lift of a hand or foot to initiate the start signal for an event. Utilizes a single Laser Retroreflective Sensor, Optical Strobe and Siren for athlete feedback.

MOVE

Can operate as a ZERO, but also has a single Ultrasonic Sensor and can be mounted on its supplies tripod to implement First movement starts, and short distance velocity profiles at the start of an event.

DUO

A Dual Beam Laser timing gate, tripod mounted.

NEO

A Dual Beam Laser timing gate, tripod mounted with a single Ultrasonic Sensor.

Safety Instructions

WARNING! Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam at porta est, et lobortis sem.



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6.1. Product Use Safety

WARNING! LASER



Swift DNA sensors transmit laser radiation which can damage eyes should you stare into the laser beam. It is therefore imperative that you read this manual and understand the hazards before using the product.

DNA Sensors, depending on the model, could carry either one or two retro-reflective sensors and up to one aiming Laser pointer. Our Sensors all fall within **Class 3R Laser** specifications.

WHAT IS A CLASS 3R LASER?

Class 3R lasers are considered safe when handled carefully. There is only a small hazard potential for accidental exposure. For visible-light lasers, Class 3R lasers output power is between 1 and 4.99 milliwatts.

In the United States, both Class 2 and 3R lasers can be sold as "pointers" or for pointing purposes. (In Australia, the U.K., and many other countries, laser pointers are restricted to Class 2 only.)

SAFE USE GUIDANCE - GENERAL

A Class 3R laser is low powered. It normally would not harm eyes during a momentary exposure of less than ¼ second. This is within the aversion response, where a person turns away and/or blinks to avoid bright light.

Do not deliberately look or stare into the laser beam. Laser protective eyewear is normally not necessary. A Class 3R laser is not a skin or materials burn hazard.

However, a Class 3R laser can be a distraction, glare or flash blindness hazard for pilots and drivers. **NEVER aim any laser towards an aircraft or vehicle that is in motion.** This is unsafe and is illegal - you could be arrested and jailed.

1.6.1. Product Labelling

SWIFT DNA Products are delivered with:
Yellow warning Labels on product



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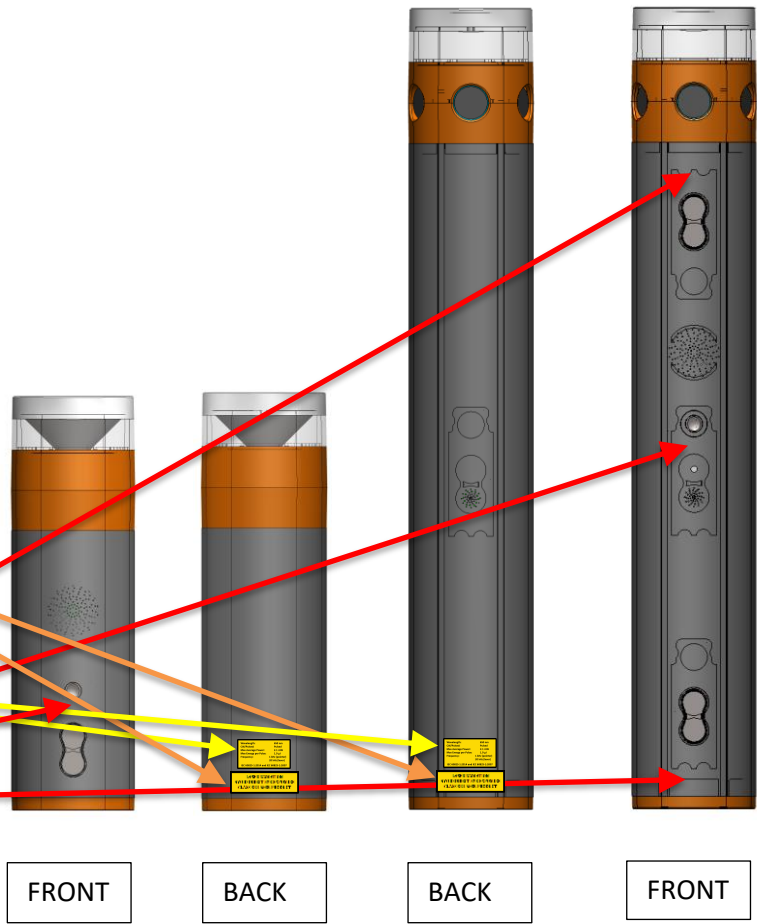
White Warning Labels on packaging

Complies with IEC/EN 60825-1:2014 and 21 CFR 1040.10 and 1040.11 except for Deviations pursuant to Laser Notice No. 50, Date: June 24, 2007

Manufacturer Name : Swift Performance
Manufacturer Address: Wacol QLD, AU
Date of Manufacture:
Place of Manufacture: Wacol QLD, AU
Serial Number :

**LASER RADIATION
AVOID DIRECT EYE EXPOSURE
CLASS 3R LASER PRODUCT**

Wavelength: 650 nm
CW/Pulsed: Pulsed
Max Average Power: 2.1 mW
Max Energy per Pulse: 1.9 µJ
Frequency: 1 kHz (pointer)
20 kHz (laser)
IEC 60825-1:2014 and IEC 60825-1:2007





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1.6.2. **Charging**

Swift DNA products must only be charged with supplied Wireless charging pucks. Do not use any charging device other than those provided.

Swift NEO systems have charging cradles built into the carry case. It is important you **NEVER LEAVE THE CARRY CASE CLOSED** when charging gates.

1.6.3. **Product limitations and restrictions**

Swift DNA sensors are NOT waterproof. Light rain will not affect them providing they are immediately dried after use, and left in a cool dry place to fully evaporate any residual water.



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1. USING SYNCRO

1.1. Installation and Account Creation

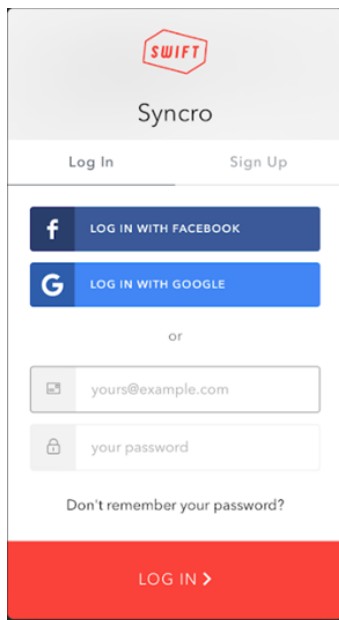
1.1.1. Download the The SYNCRO App

You will find it on the Apple App Store as a free download. Open the App Store on your iPad and search for “SYNCRO”. Once found, download the SYNCRO app to your device. Alternatively, you can find the app via this link: <https://itunes.apple.com/us/app/syncro/id1440671289?mt=8>

Be sure to keep the app updated on your device at all times.



1.1.2. Creating Your account



Upon first use of the SYNCRO app, you will need to login to create an account. You have the option to log in via a designated email and password, or alternatively by using your Facebook or Google account details.

It is important that whichever method you use to sign in, you always use this method in the future.

All users of EZEJUMP or SYNCRO apps must have a Swift Labs account.

Upon first subscription you will get a FREE 2 month trial period at PRO level.

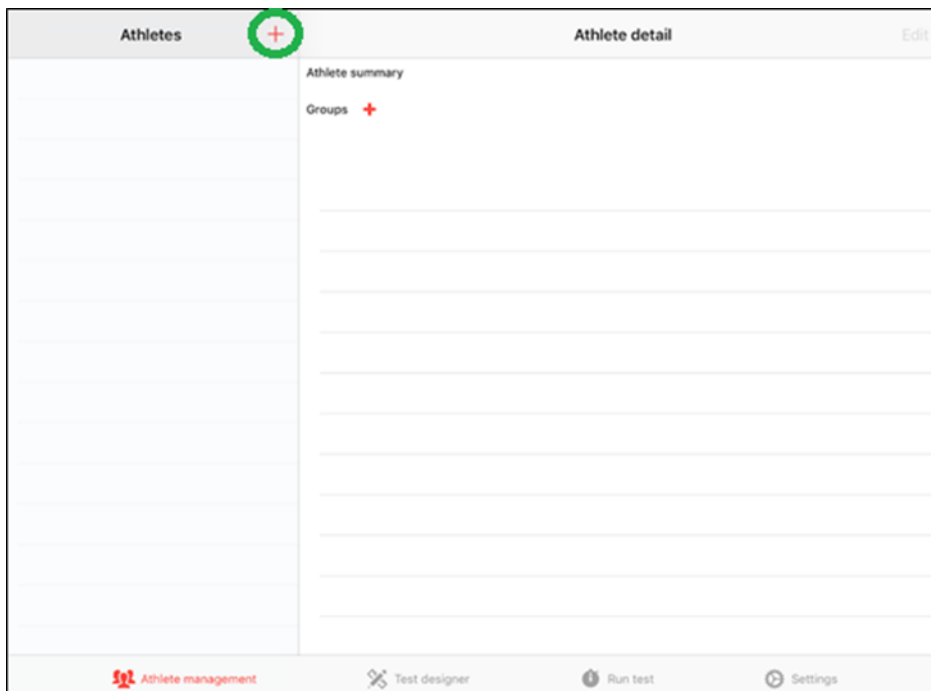
Please note you will need Internet access at this stage to successfully sign up or log in to your account.

1.1.3. Creating an Athlete

If this is your first time using the app, you will need to create at least one athlete to run a test. Management of large groups of athletes is best done through your Swift Labs dashboard, however it is also possible to import groups of athletes via a CSV file. Details of the required CSV format can be found in our support pages on the website.

On the *Athlete management* tab found at the bottom left of the app screen, you can view all of

your saved athletes and their results. To create an athlete, tap the + button at the top of the Athletes list (shown below). Fill in the athlete details and select Save to finish.



1.1.4. Designing a Test

Select the *Test designer* page from the bottom of the iPad screen. Here, you can design new tests or open previously designed tests for editing.

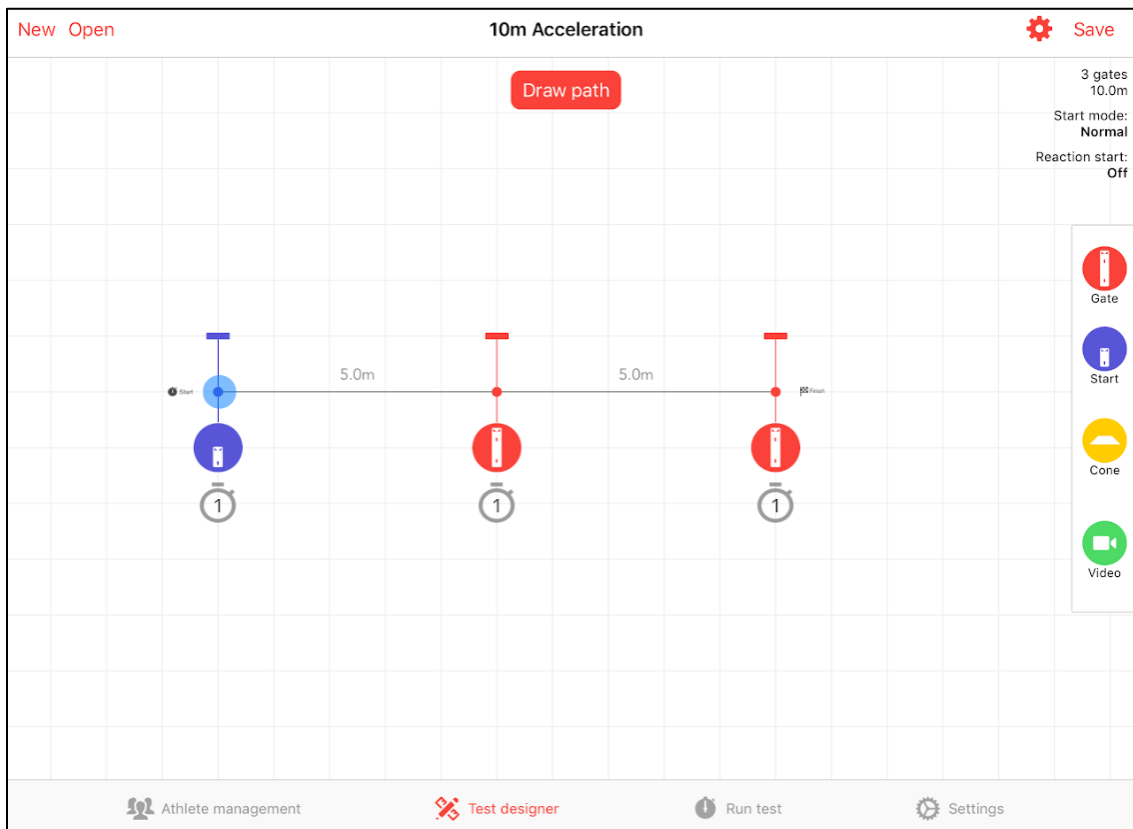
On the right-hand side, you can see the available device options for your test including: *Gate*, *Start* and *Cone* (the *Video* feature will be available soon). Drag and drop your desired devices into position in the central test design area. By default, you will see the linear distance from device to device in the order you place the devices on the screen. If you want to remove a device, hold your finger on the device and drag towards the top of the screen to the *Remove Bin*.

Once you have placed all devices in their positions, tap the *Draw path* button found at the top of the Test designer screen. With your finger, trace the path the athlete will travel during the test, passing through individual Sensors multiple times if desired. The Test designer tool will now predict the path your athlete will take during the test and demonstrate this to you via a moving



blue dot. If you are satisfied with the test path, select *Finish* at the top of the screen. If not, simply redesign the test or redraw the path until you are satisfied.

In the example test shown below, we have designed a 10 metre acceleration test with a Start Sensor and 2 Gate Sensors at 5 metres and 10 metres respectively. A path has been drawn from left to right via the Draw path function.



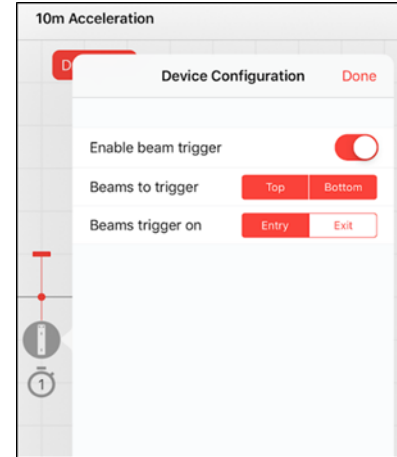
Tap on each device to alter specific settings for that device, including enabling or disabling top and bottom Sensor beams, and triggering on entry or exit of the Sensor (menu shown on the right). You can also hold your finger on the Reflector alongside each Sensor in your test design and rotate the orientation of the Sensor.



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In the top right corner of the screen, you will find information on your test including: the number of devices, the total linear distance of your test, your Start Mode and your Reaction Start setting. If you wish to edit the starting mechanism of your test, tap the Settings button in the top right corner to select your desired Start Mode and to enable Reaction Start.

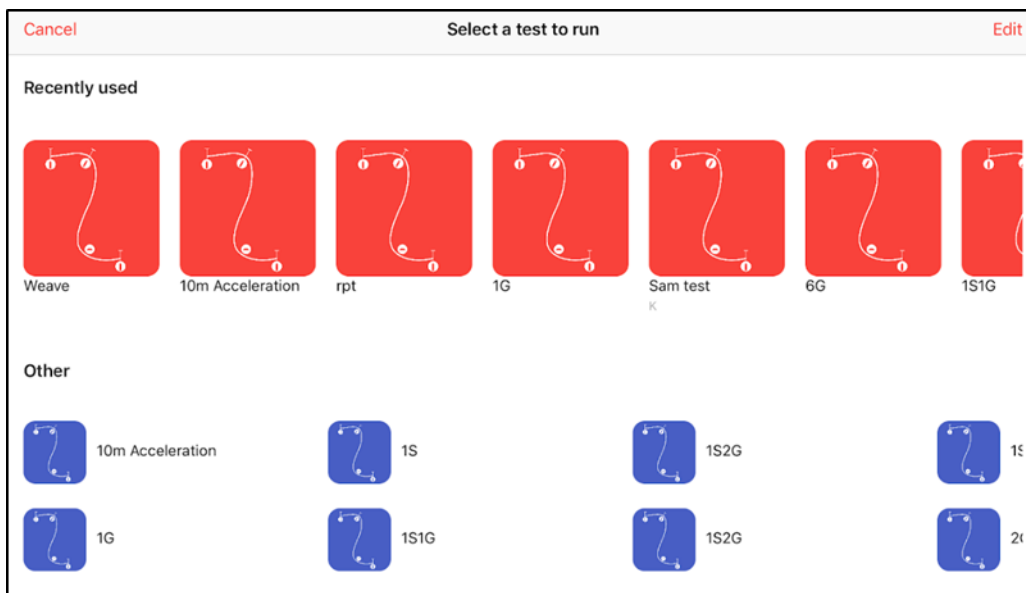
Once you are happy with your test, select *Save* in the top right corner, give your test a name and select *Save* again.



2.1. Selecting a Test to Run

At the bottom of the screen, select the *Run test* tab. On this screen you will see a list of the available athletes for testing, the current test layout (if one has been selected already) and past results for this test/athlete.

To select a test, select the  button at the top right corner of the screen. On this screen you will see all available tests for you to choose from. Select the test you wish to undertake.



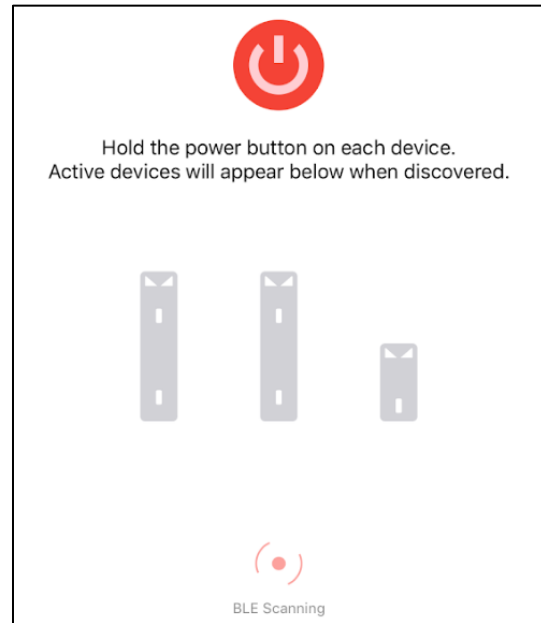


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1.2.1. Turning on your Sensors

After selecting your desired test, the app will now prompt you to connect the required Sensors to undertake this specific test via the *Turn on devices* screen. The required number of Sensors and their type is demonstrated by a ghosted image of each required device in the centre of the screen (see right). It is important to note that at this point, all Sensors should be within 5 metres (16 feet) of the iPad and not placed in position on the field for testing.

Turn on each Sensor by holding the *power button* on the front of the Sensor until the top strobe lights up yellow and the Sensor makes a loud beep. Each Sensor will take approximately 30 seconds to boot up before it begins to search for an active SYNCRO app to communicate with.

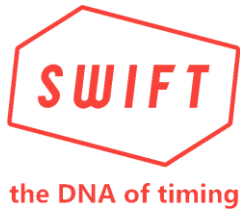


1.2.2. Connecting your Sensors to SYNCRO App

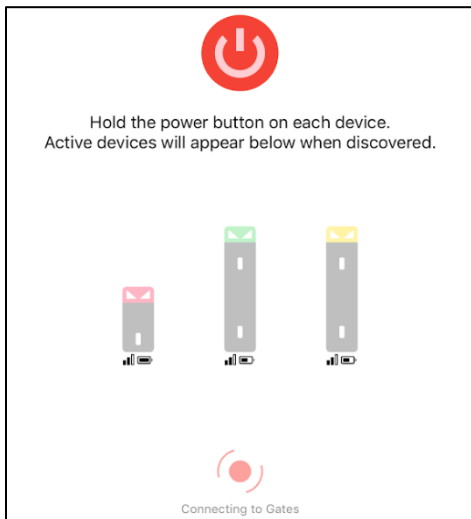
While on the *Turn on devices* tab on your iPad, the SYNCRO app will be searching for new Sensors via BLE. As active Sensors are found via the app, the strobe on each Sensor will be lit a unique identifying colour, which will also be replicated on the app screen. You will also be able to see a battery level and signal strength indication for each Sensor. Tap on the found Sensor in the app to *Identify* the device (sounds buzzer and flash strobe) or *Disconnect* from the device.

As Sensors connect to the SYNCRO app, the app will designate one device to be the Access Point for the entire system during testing. Once the app selects a designated Access Point for testing, you will be prompted to connect to its Wi-Fi network. Once prompted, select *Join*. If joining the network is unsuccessful, wait 30 seconds and select *Join* when prompted again.

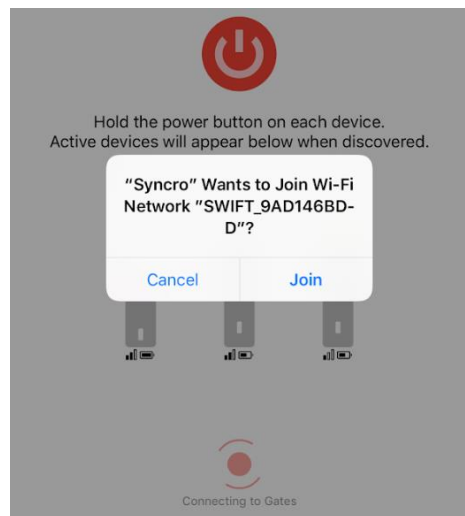
If successful, your iPad will now automatically connect to the desired Wi-Fi network – no need to leave the SYNCRO app. The app will now connect to the Access Point via Wi-Fi, while all other Gates will connect to SYNCRO via the Access Point. Once all Gates have successfully connected to SYNCRO via the Access Point, all devices shown on the page will appear black, and the text



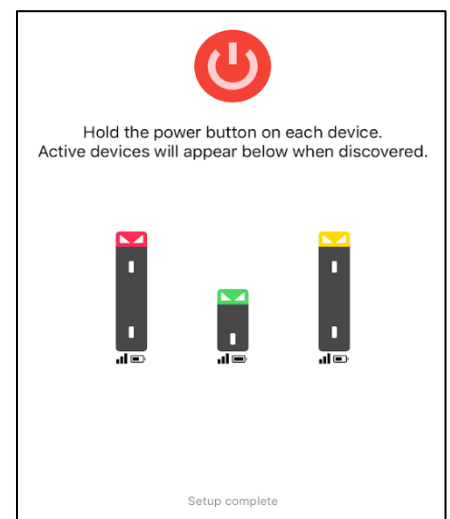
“Setup complete” will appear underneath the devices. After you see this text, select *Continue* in the top right corner of the screen.



All devices connected.



Connect to WIFI



All devices connected

You are now ready to continue onto the next stage of setup.

Please be patient when waiting for devices to appear in the SYNCRO app via Bluetooth and WiFi. Allow for up to 3 minutes from device finishing its boot phase to connect to SYNCRO via WiFi.

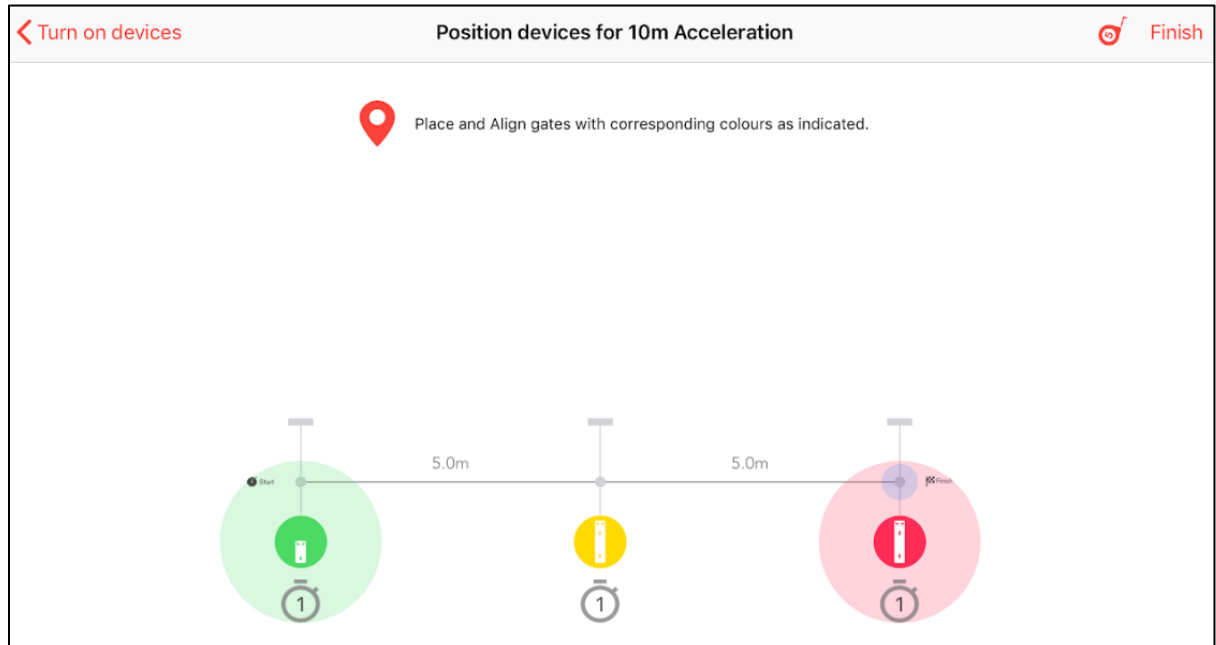
SYNCRO is actively searching in the background for the best communication channels for each device which may take a few minutes but will deliver the most reliable connections during testing.

3.1. Placing and Aligning your Sensors

It is now time to place the devices in position in the field for testing. The SYNCRO app will tell you where to place each specific device in your test. For example, in the test setup shown below, the Sensor lit green is the start Sensor, yellow the 5 metre split, and finally the red sensor is the 10 metre and final split in this test.



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Your Zero/Move Sensor (smaller sized, single beam Sensor) is a ground-based device which comes with a magnetic base plate. Attach this magnetic base plate to your Sensor, and your Reflector before placing in the field to help ensure your device sits level on the ground. Place each Duo/Neo gate (taller sized, dual beam Sensor) and its Reflector in their supplied tripods.

Place your device Reflectors opposite your Sensors in position in the field, creating a lane for the Athlete to pass through while testing. On the larger Duo and Neo Sensors, aim the alignment laser at the target of the opposing Reflector. You will also hear a beep from the device when it sees its Reflector.

When not aligned with their Reflector, Sensors will flash their lights.

Once aligned, the lights will be lit solid for 5 seconds, after which they will do a single flash every 10 seconds as an 'alive' message.

Select *Finish* in the top right corner of the screen.

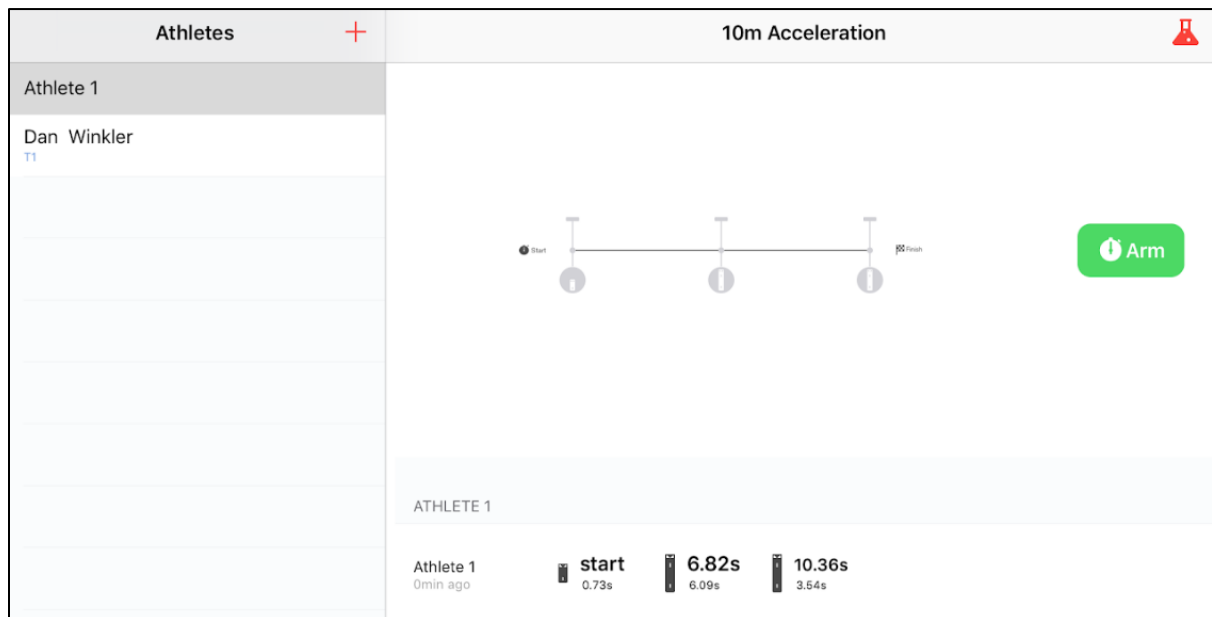


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4.1. Running Tests

Select the *Run test* tab, an *Arm* button will become green to the right of your selected test. This indicates you are ready to run your tests. Select the desired Athlete you wish to run the test and tap *Arm*.

After the Athlete has completed the test, their result will appear in the *Results* section of the *Run test* tab and be stored under that Athlete's history.



As *Reaction* has been enabled in this test, you can see in the test result of *Athlete 1* the athlete took 0.73s to start their test, followed by their total split times and individual sector split times.

5.1. Powering Down

All Devices can be turned off via the app on the DEVICES page, or holding the power button on the front of each device, until the buzzer sounds and the top of the Sensor is lit red. The Sensor will now shut down.