1D Gate Positioning

Forget about the tape measure on testing day! Our brand new Move and Neo Sensors utilise ultrasonic technology to assist you in placing your devices in the correct position in the field.

This manual aims to explain in detail:

1. What test designs can utilise the 1D Gate Positioning feature, and
2. How to place your devices in the field using this feature.

1. Test Design for 1D Gate Positioning

Test designs which can utilise 1D Gate Positioning must adhere to the following criteria:

1. The test layout must be a straight line from start to finish (1D)
2. The distance between each sequential timing device in your test must not be greater than 10 metres.

For example, a test design with a Start, 5 metre, 10 metre and 20 metre split in a straight line would be able to utilise 1D Gate Positioning, however a test design with a Start, 10 metre, 20 metre, and 40 metre splits would not.

Below is an example of a test to utilise the 1D Gate Positioning feature. This test demonstrates a 10 metre sprint, using a Move Sensor as the starting device, and a Neo Sensor (dual-beam Timing Gate) as the finish (10 metre split). Here we are only using two Sensors, however, you may use more if you wish, so long as you follow the test criteria outlined above.
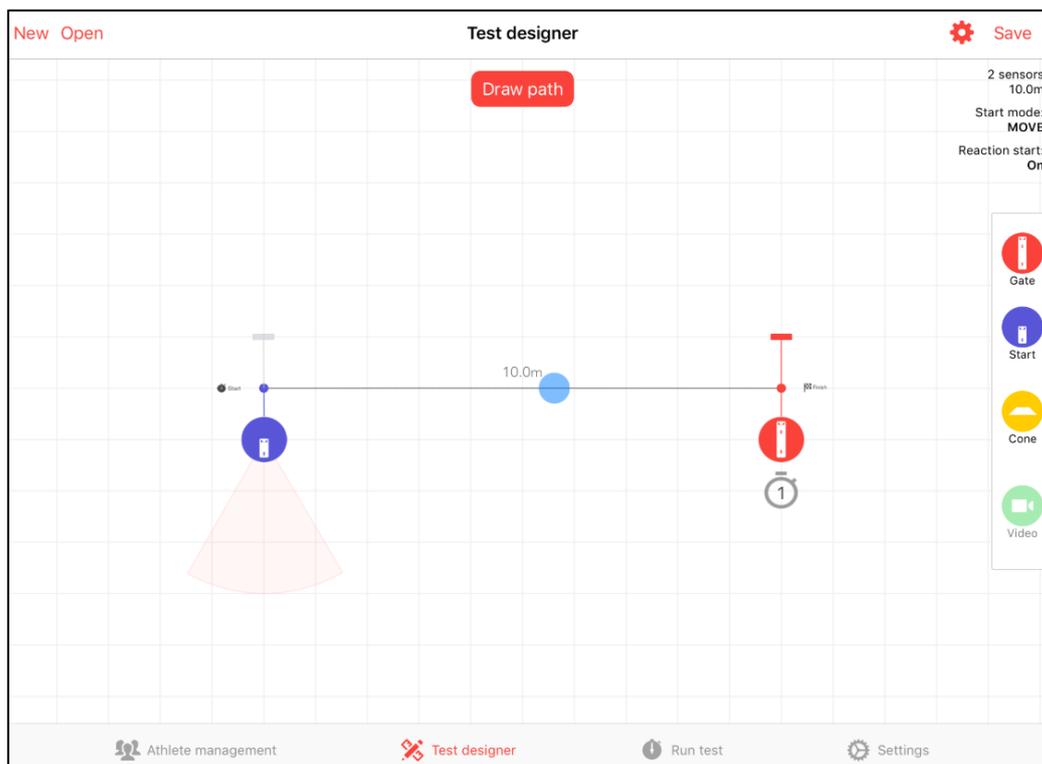
After you have your test design, give it a name and Save before navigating to the '*Run test*' tab. On the '*Run test*' tab, select your test, and connect to your devices. Please refer to the manual included with your system (also found in '*Settings*' tab in the app) if you need assistance with the setup process.

2. Placing your Devices in the Field

At this stage, we have selected our test via the '*Run test*' tab and have connected to all required timing devices. After device connection is complete, you will be asked what '*positioning mode*' you would like to use. Select '*Assisted – Guided gate positioning*' mode.

The 1D Gate Positioning process will now start. The steps below and screen shots outline how to carry out your device placement correctly, and what indicators to look out for when placing your devices. You should now see the below image in the Syncro app.
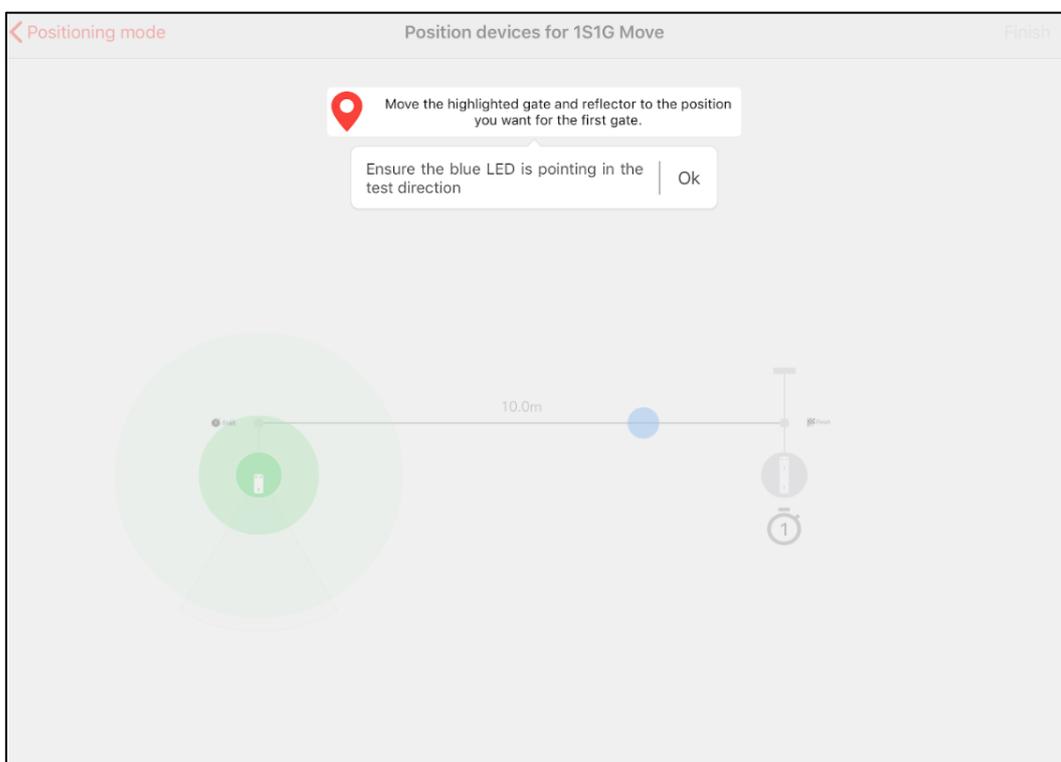
2.1 Place your Starting Device

One of your devices will now be flashing its Strobe – this is your Start device. Locate this device and place it directly above the Starting point of your test environment. Ensure the blue light on top of the device is pointing in the direction of your test.

Follow the prompts on screen to let the app know you are ready to proceed with placing the next device in your test.

2.2 Place your Second Device

The next device to be placed in your test will now begin to flash its Strobe. Take this device and walk towards the 10 metre mark (or the distance you have set for your test) from the Start Gate, ensuring the following:

1. The Red Arrow on top of your device is pointing in the test direction, and
2. You, or any other person or object, does not obstruct direct line of sight between the start device and the device you are holding.

As you walk with the device towards its target position, pointing the Red Arrow in the direction of the test at all times, you will notice the Strobe Indicator LEDs on top of the device begin to light up.
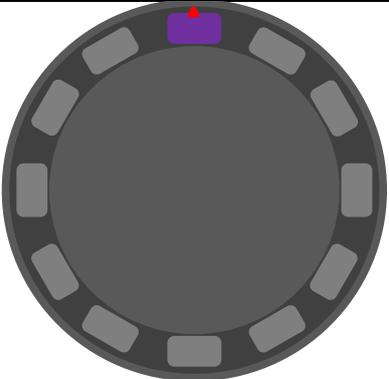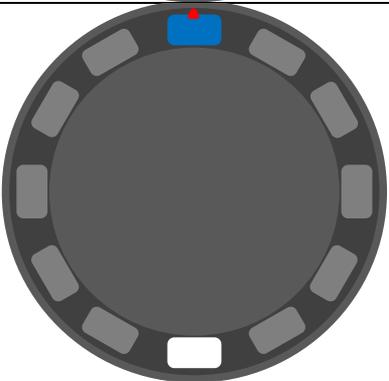
The Strobe Indicator LEDs can be broken down into 3 parts as demonstrated in the image to the right.

The Top and Bottom LEDs indicate what direction you need to move this device (towards or away from Start device), while the Distance Indicator Arcs will tell the user how close they are to the target position.
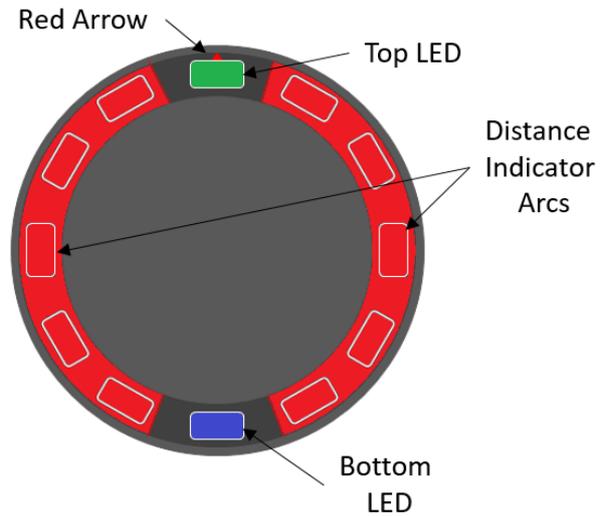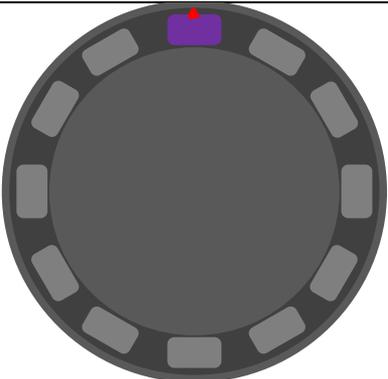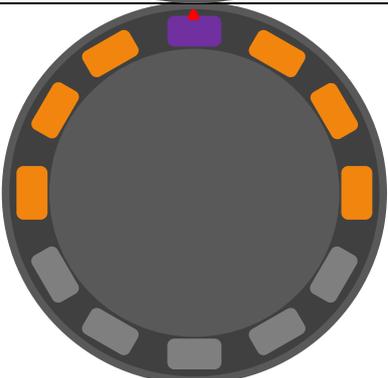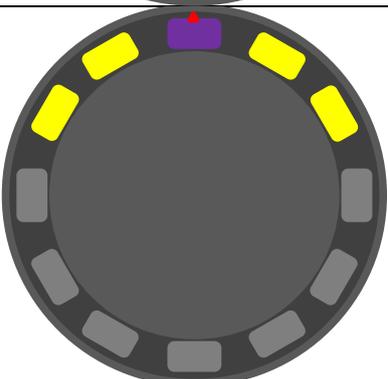
The table below describes how to interpret the Top and Bottom LEDs behaviour on top of the device. Take
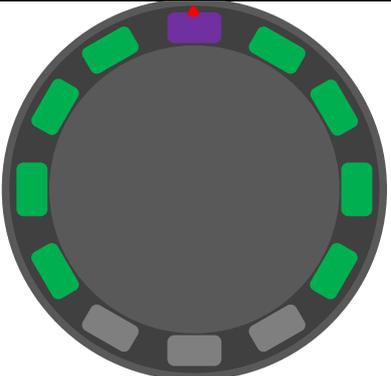
note of the position of the red arrow on your device when using this feature. It should always be pointing in the test direction when placing your device.

Top LED: Purple **Bottom LED**: Off		Move in direction of PURPLE LED. Distance to Start device is LESS than target distance. Move device away from Start device.
Top LED: Blue **Bottom LED**: White		Move in direction of WHITE LED. Distance to Start device is GREATER than target distance. Move device towards Start device.

Next we need to understand what the Distance Indicator Arcs signify while trying to place your device. As you get closer to the target point, the Arcs on either side of the Top and Bottom LEDs will begin to grow, and the colour of these Arcs will transition from Orange, Yellow, and finally to Green. Once you reach a Green coloured Arc you need to SLOW DOWN as you are within 20 centimetres (~8 inches) of the target position. Our aim here is to grow the Arcs completely fill the Strobe Indicator LEDs the colour Green. This only occurs when the device is at its target position.

The following table demonstrates the behaviour of the Distance Indicator Arcs, as well as Top and Bottom LEDs, when placing a device in your test.

Top LED: Purple **Bottom LED**: Off **Distance Indicator Arcs**: Off		Move in direction of PURPLE LED. No Distance Indicator Arcs yet tells us we are GREATER THAN 5 metres from target distance.
Top LED: Purple **Bottom LED**: Off **Distance Indicator Arcs**: Orange		Move in direction of PURPLE LED. Growing ORANGE Arcs tells us we are moving in the right direction but are still GREATER THAN 3 metres from target position.
Top LED: Purple **Bottom LED**: Off **Distance Indicator Arcs**: Yellow		Move in direction of PURPLE LED. Growing YELLOW Arcs tells us we are moving in the right direction but are still GREATER THAN 0.2 metres from target position.

Top LED: Purple **Bottom LED**: Off **Distance Indicator Arcs**: Green		SLOWLY move in the direction of PURPLE LED. Growing GREEN Arcs tells us we are moving in the right direction and are within 20 centimetres of the target position.
Top LED: Blue **Bottom LED:** White **Distance Indicator Arcs:** Green		You have gone past the target position. SLOWLY move in the direction of the WHITE LED back towards the Start device. You are still within 20cm of the target position.
All LEDs: Green briefly before turning off		The device is now in the target position.
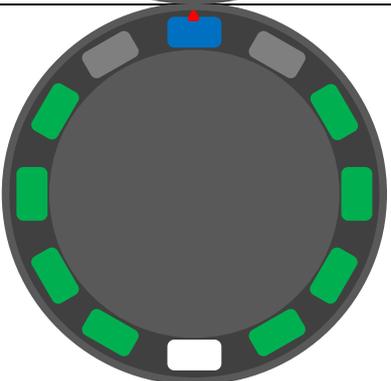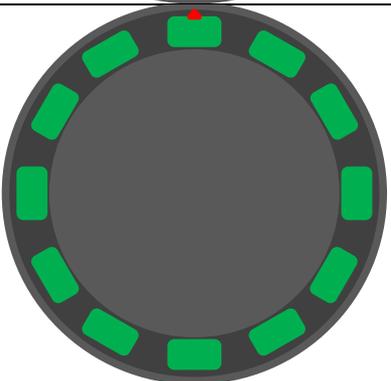
2.3 MOVE as your Starting Device

If you are using a Move Sensor with the Move starting method for your test, the Move Sensor will need to be moved backwards from the Start line as we need room for the athlete to start. The Strobe Indicator LEDs on the Move Sensor will now be indicating its position. Utilising the exact same methodology as you did to place the 10 metre device previously in *Section 2.2*, place the Move Sensor 1.5 metres behind the Start line.

2.4 Using 1D Gate Positioning with more than 2 Devices

If your test only has a Start and Finish device (as per the example given in this manual), you will now be up to the alignment process with your device(s). However, if you have 3 or more devices in your test utilising 1D Gate Positioning, you will need to repeat the positioning process with each remaining device in sequential order.

For each additional device, follow the steps below:

1. On the device that was last placed in your test (will have a blue flashing LED on top and does not include the starting Move Sensor), release the small adjustment knob and rotate the device 180 degrees so the blue flashing LED on top of the device is pointing in the test direction. It is important not to move your device after you have successfully placed it using the 1D Gate Positioning feature.

2. Locate your next device which will now be flashing its Strobe LEDs.

3. Repeat the instructions set out in *Section 2.2* for positioning the device.

4. Repeat these steps for each additional device you have included in your test.

Once all devices have been positioned correctly, release the small adjustment knob on each Tripod and rotate each device 90 degrees to align with its corresponding Reflector.

You are now ready to begin your testing.