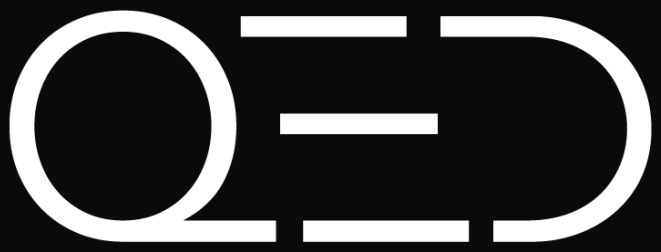
USER MANUAL



Important: Read before using.

Notice

Grounding Instructions

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electrical current to reduce the risk of electric shock. This tool is equipped with an electrical cord having an equipment grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Do not modify the plug provided. If it will not fit the outlet, have proper outlet installed by a qualified electrician.

TABLE OF CONTENTS

To Ensure Safe Use

Safety

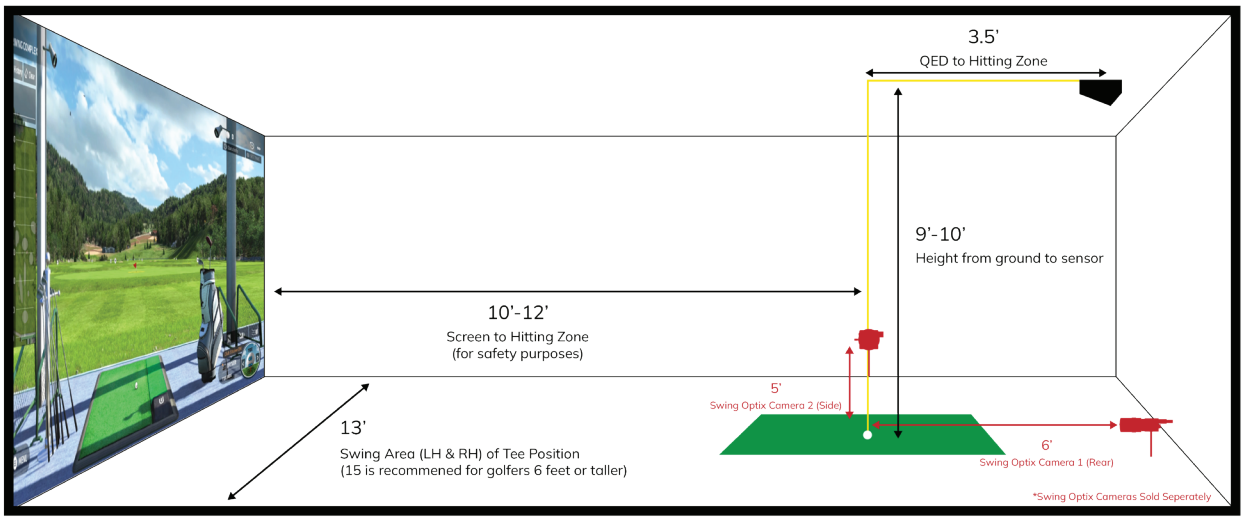
Improper handling or operation of this machine may result in injury or damage to property. Points which must be observed to prevent injury or damage are described as follows.

⚠ WARNING	Used for instructions intended to alert the user to the risk of severe injury should the unit be used improperly.
⚠ Caution	Used for instructions intended to alert the user to the risk of injury or material damage should the unit be used improperly. Material damage refers to damage to home, furnishing, or anything within the unit's vicinity.
⚠ NEVER	This symbol alerts the user to items that should never be carried out.

To Ensure Safe Use *Cont.*

⚠ This is a heavy machine.
⚠ WARNING!

⚠	Install in a level and stable location. Failure to do so may result in falling of the machine, leading to injury.
⚠	Never attempt to disassemble, repair, or modify shock, or injury. Entrust repairs to a trained technician.
⚠	Never use outside or in any location where exposure to water or high humidity may occur. Do not touch the power cord or electrical outlet with wet or dirty hands. Doing so may result in electrical shock.
⚠	Conduct play in a clean and brightly lit location. Operating in a dark or cluttered space may lead to accidents.
⚠	Be aware of your surroundings and use cautiously with children around. Swinging the club during play without being aware will result in serious injury or death.



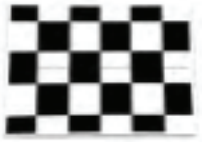
Category	Requirement
CPU	Intel i5 8400 or higher*
RAM	8 GB
Graphics Card	GeForceGTX 1060 or higher
Operating System	Windows 10 (64bit) Version 1803 or higher
Resolution	1920 x 1080
Connectivity	Ethernet Port Required

* AMD: 3rd gen Ryzen or higher and AMD Ryzen 3600 or higher (AMD 2700 is not compatible).

The following items are included with the sensor. Make sure they are all present and accounted for.

QED Sensor Bar

Bracket



Calibration Chart

Power Cable

Power Adapter

Power Connector

USB Ethernet Adapter

Ethernet LAN Cable

Level

M4 32mm screws

M6 15mm screws

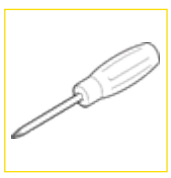
Club Stickers

Hardware Install

⚠ WARNING	Used for instructions intended to alert the user to the risk of severe injury should the unit be used improperly.
⚠ WARNING	Used for instructions intended to alert the user to the risk of injury or material damage should the unit be used improperly. Material damage refers to damage to home, furnishing, or anything within the unit's vicinity.
⚠ CAUTION	This symbol alerts the user to items that should never be carried out.

NECESSARY TOOLS

Ladder



Phillips Screwdriver

NECESSARY PARTS

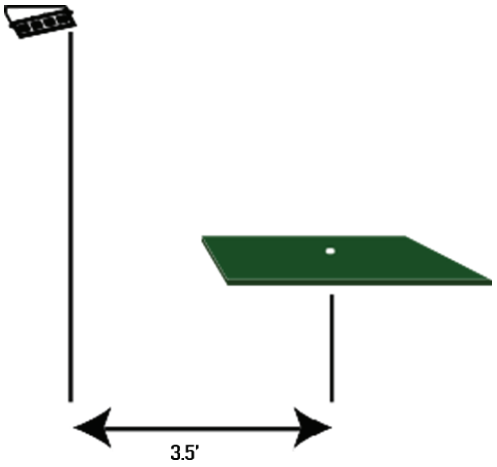
M4 32mm Screw x9

Bracket

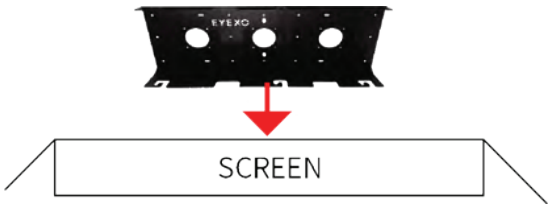
Sensor Bar

Hardware Install

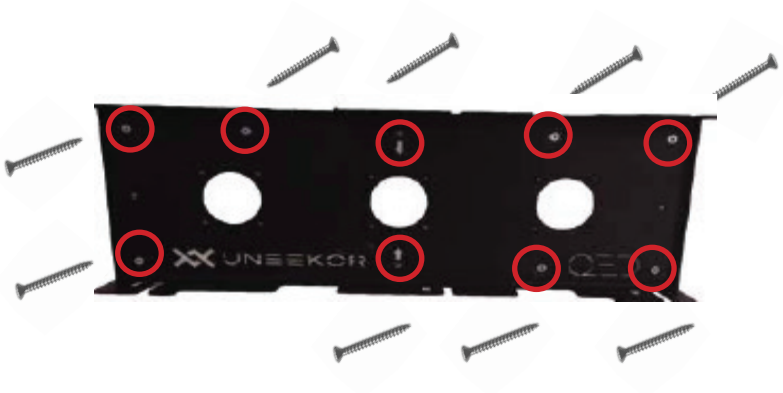
Step 1: Mount Bracket



1 The QED Sensor and bracket come attached together in the box. Slightly loosen the black M6 15 mm screws that are holding the sensor to the bracket so you can remove it. Please make sure you have measured 3.5 feet from the front of the sensor to your tee position. Do NOT align to the bracket. The QED is mounted 3.5' behind the center of the hiting arera.



2 Place the ladder under the location on the ceiling where the bracket will be mounted. Place the bracket flat against the ceiling with the hinges facing down toward the ground. The side with the Uneekor logo should be closest to the impact

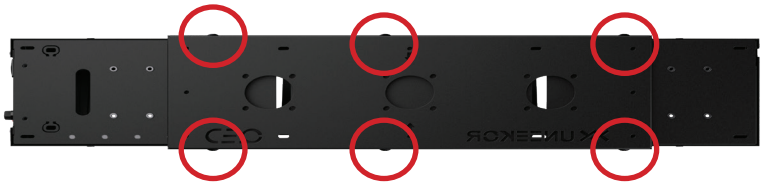


3 With the bracket in position, grab the 10 silver M4 32mm screws and screw them in the locations below in the diagram.

Step 2: Insert Sensor

After the bracket has been firmly mounted to the ceiling, you will install the sensor bar.

1 The sensor bar comes with 6 black M6 15mm screws already inserted; 3 screws in the front and 3 screws in the back. Make sure all 6 screws are about halfway into the bar and even in length.



2 Slide the sensor bar with the 6 screws up and over through the bracket hinges. Make sure the screws are secured in the hook part of the hinges. Once the sensor is secured in the bracket hinges, tighten the 6 screws to the bracket.

Hardware Install

Step 3: Connection

Ethernet LAN Cable

Power Cable

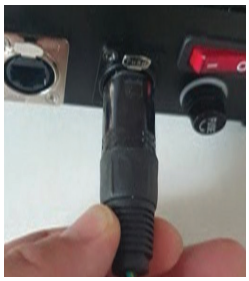
Power Adapter

Power Connector

NECESSARY PARTS

1 Take out the Ethernet LAN cable from the box. Connect the end with the tag that reads “Connect this side of LAN cable to Sensor ONLY” to the sensor. Connect the other end DIRECTLY to your PC ethernet port and NOT the USB adapter.

Ethernet LAN



Power Connector

2 Take out all 3 components of the power source: power cable, power adapter, and power connector. Connect all 3 accordingly and connect the “Power Connector” end directly to the sensor as shown below. Turn on red switch.

Note: The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

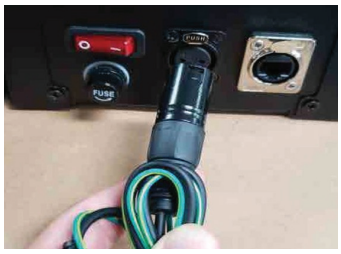
An extra green grounding wire is provided on the end of the power connector in case your outlet is not grounded.

***Make sure to check the connection status before you start the software installation process.*

Step 4: Connection Status

It is important before you start the network setup process, that you have the sensor bar powered on and connected to your PC with the LAN cable provided to you in the shipping box.

Make sure the LAN cable is DIRECTLY connected to your PC in the back Ethernet port. Do NOT have it connected to the USB Adapter or a hub.



Sensor

LAN Cable (Ethernet)

PC

Software Installation Warning

⚠ WARNING	Please make sure PC requirements are met from section 1 “Installation Environment,” before the installation process. Failure to do will result in installation issues and slow gameplay.
⚠ WARNING	Please make sure the connection statuses are clear and everything is paired. Failure to do will result in installation issues.

Software Installation

1

To begin the software installation for your QED. Please download the Uneekor Launcher found under the resources tab of Uneekor.com or use the link below.

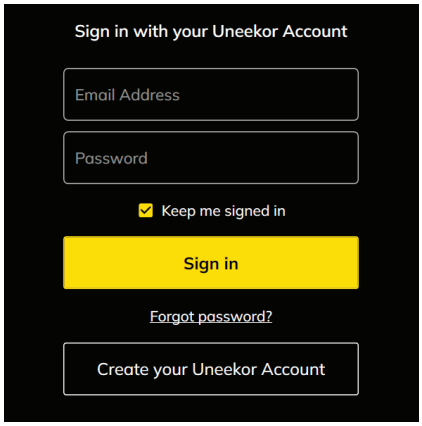
Uneekor Launcher

For further information on using the Uneekor Launcher, please see below.

Overview Guide

2

After downloading the launcher, create an account by clicking “Create your Uneekor Account.” If you already have an account, select sign in.

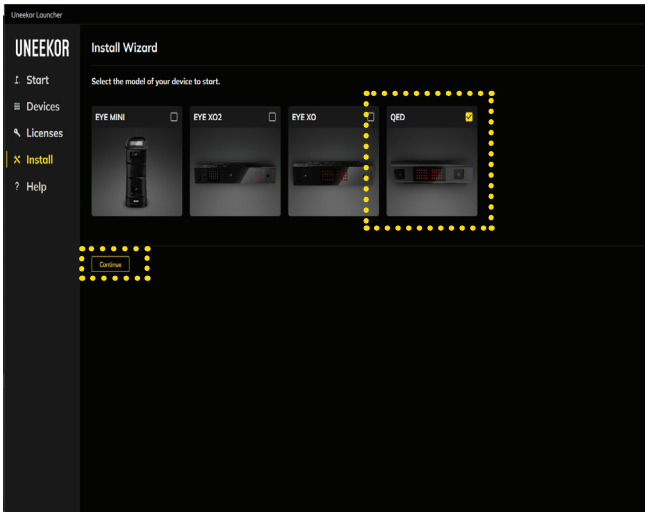


3

Go to the “Install” tab on the left side of the launcher and select the QED, then continue.

For the remainder of the software installation, please follow the step-by-step guide on the Launcher.

If you have any issues with installation, please see the next two pages.



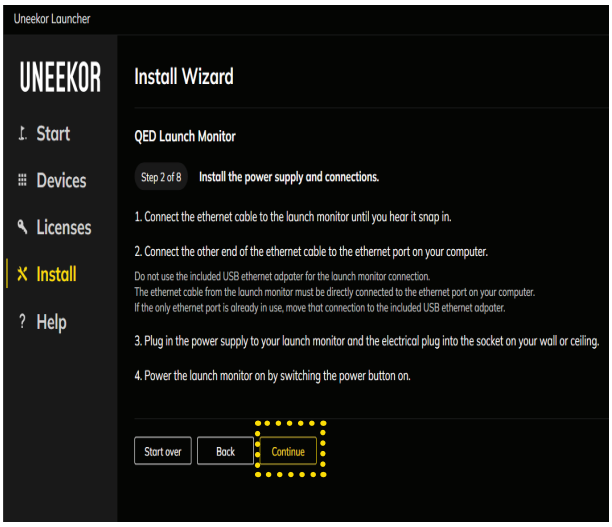
Software Installation - Cont

Uneekor Launcher

4

Ensure your QED is plugged into the power, and the CAT6 cable is connected from the QED directly into the Ethernet port on your PC. If connected using the USB 3.0 adaptor, you'll run into issues using the QED.

If these conditions are met, click "Continue."

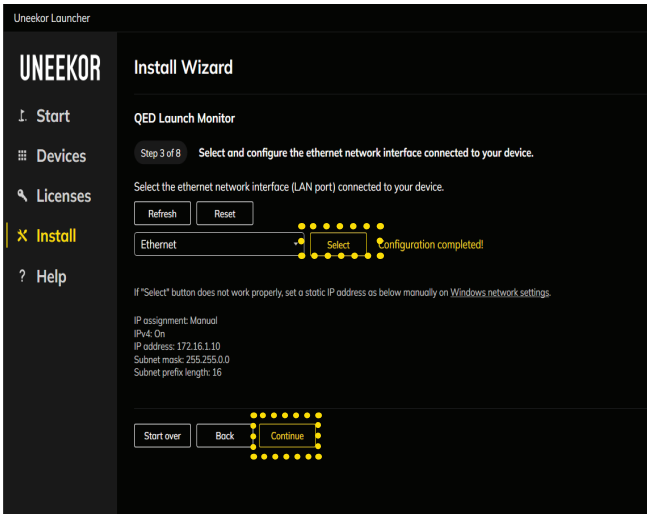


5

If you only have one Ethernet port on your PC, then you should only have one option for the selection of Ethernet ports.

If you have 2 or more Ethernet ports, select the Ethernet port your QED is connected to in the drop down and click "Select."

Once the proper Ethernet port is selected, press "Continue."



Software Installation - Cont

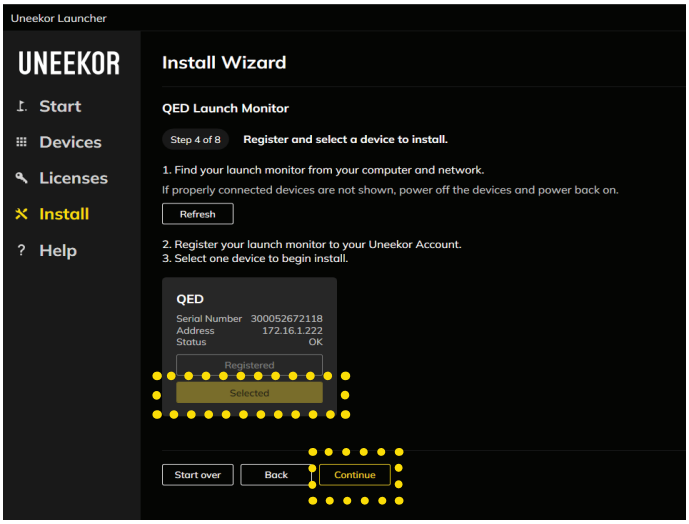
6

You will see your QED here. Click “Select” and then “Continue” on the bottom.

If you do not see your QED press the “Refresh” button.

If your QED still does not appear return to step 5 and select a different Ethernet port and click “Select.”

If you continue having issues, please power off your QED. Then ensure your QED is connected properly connected to your PC and power outlet, and then close and reopen the Uneekor Launcher to start the installation process over.

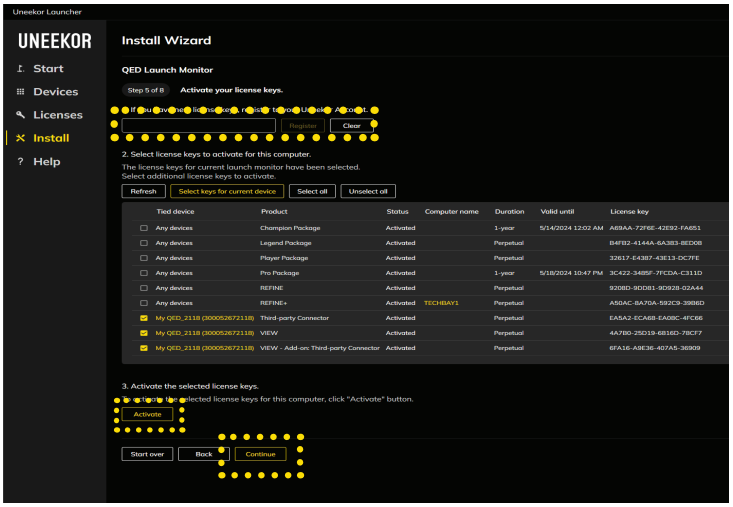


7

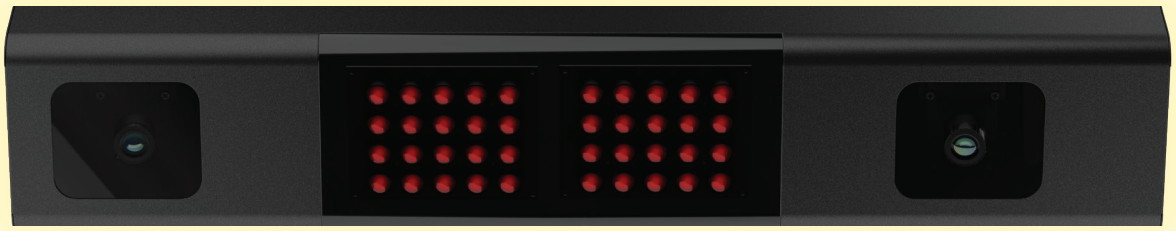
You may enter license keys manually using the box under 1. (Swing Optix, Refine/+, and Balance Optix)

Under 2, your 3rd Party Connector, View, and Refine+ 30-Day Trial will already be present. Individually select which licenses you would like to activate using the box on the left or you can press the “Select Keys for Current Device” to activate all keys associated with your QED. Make sure to press “Activate” under 3. and then press “Continue.”

Hardware installation is now complete. The next steps will walk you through calibration.

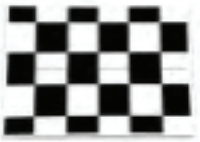


CALIBRATION GUIDE



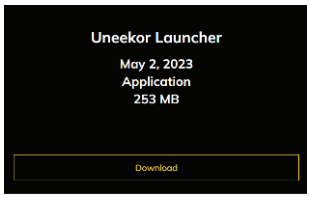
Calibration Chart

Parts required



Level

Tool required



Uneekor Launcher

Software required

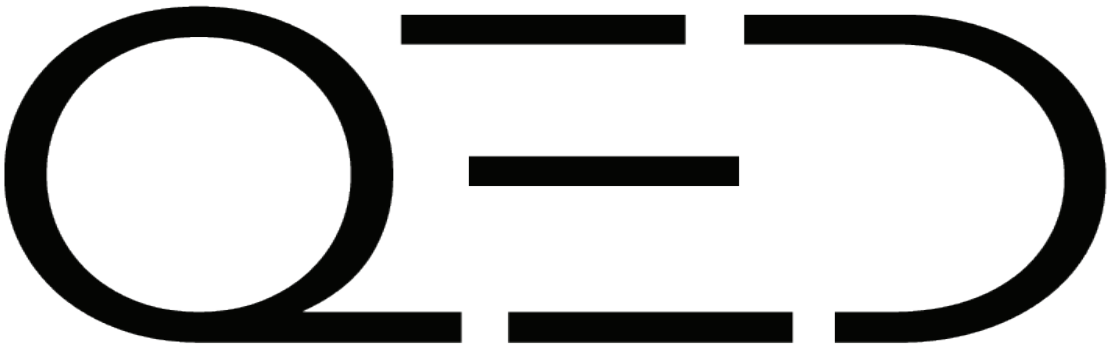
To Ensure Safe Use

⚠ WARNING	Confirm you have successfully finished the hardware and software installation before you begin the calibration process.
⚠ WARNING	The mounting position of the QED sensor must be perfectly aligned 3 feet 6 inches behind the center of your tee position and between 9 - 10 feet for the ceiling height. Failure to meet these requirements will result in accuracy issues.

Calibrating

During the installation process of the QED using the launcher, it will automatically pull up the calibration tool.

Please follow the prompts on the launcher to calibrate your QED. If you have any issues calibrating your device using the instructions on the launcher, please see the next page.



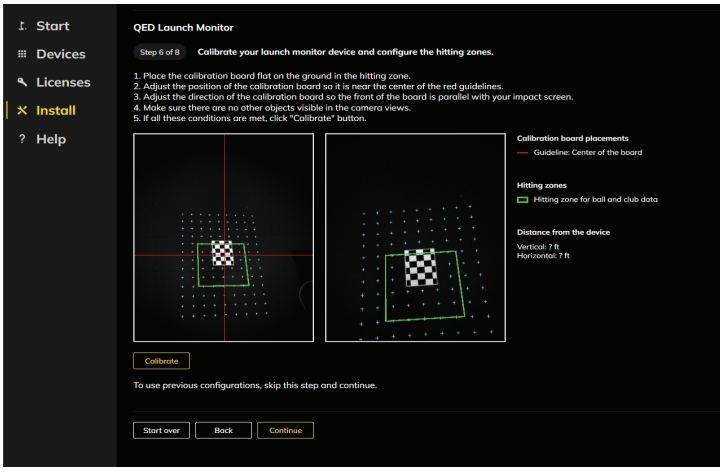
Calibrating

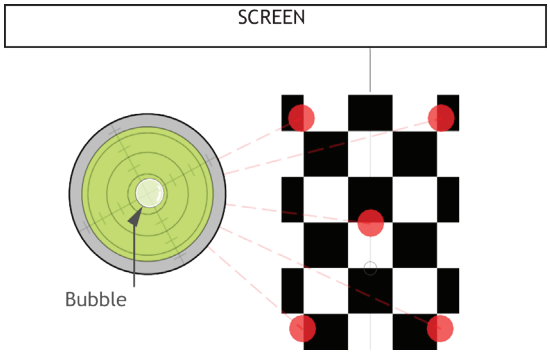
Step 1

During Step 6 of the installation process, the calibration tool on the right will open. Please follow the prompts on the screen. If you have any issues than see the remaining steps below.

Lay the calibration board flat and ensure the calibration board is within the red squares on all 3 windows.

*Ensure there are no other objects visible in each camera view when calibrating your launch monitor.





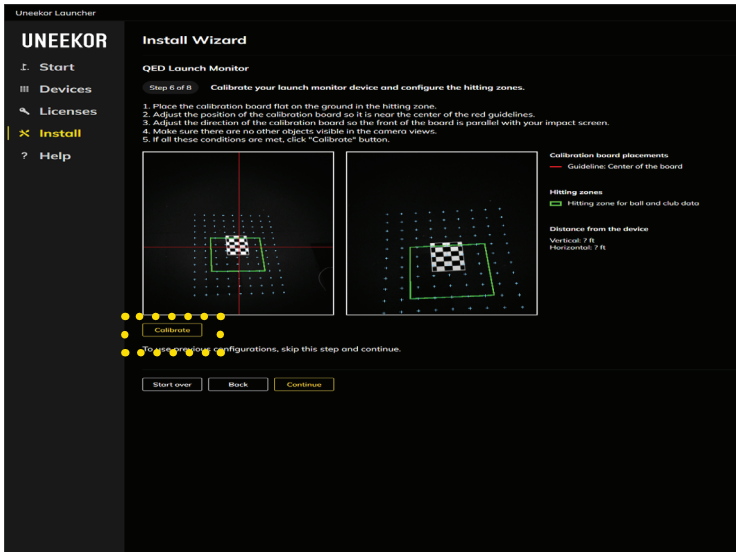
Step 2

Next, place the bubble leveling tool on the calibration board to confirm that the hitting mat is level front to back and side to side.

Step 3

Before pressing “Calibrate” below the first camera window, make sure the top of the calibration board is parallel with the impact screen and nothing other than the calibration board is visible in the calibration tool.

If all the above conditions are met, click “Calibrate” on the bottom left.



Calibrating

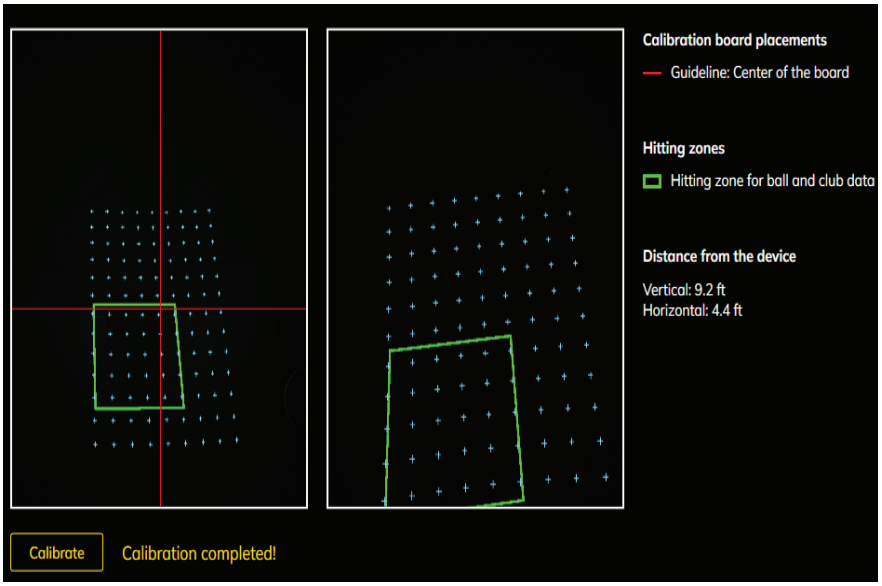
Step 4

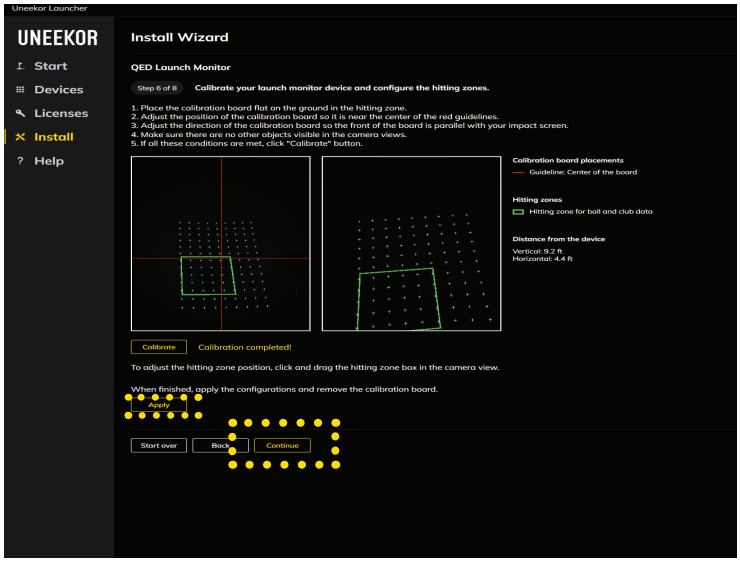
Once the system is finished calibrating the launch monitor, you will see the screen pictured to the right.

Remove the Calibration board.

The hitting zone can be moved within the speckled/ checkered area. Drag and drop the green hitting box to your desired hitting area.

If you're not able to move the hitting zone to your desired area within the speckled zone, you will need to remount your QED.





Step 5

Once you have the hitting zone and calibration complete. Click "Apply" and then "Continue."

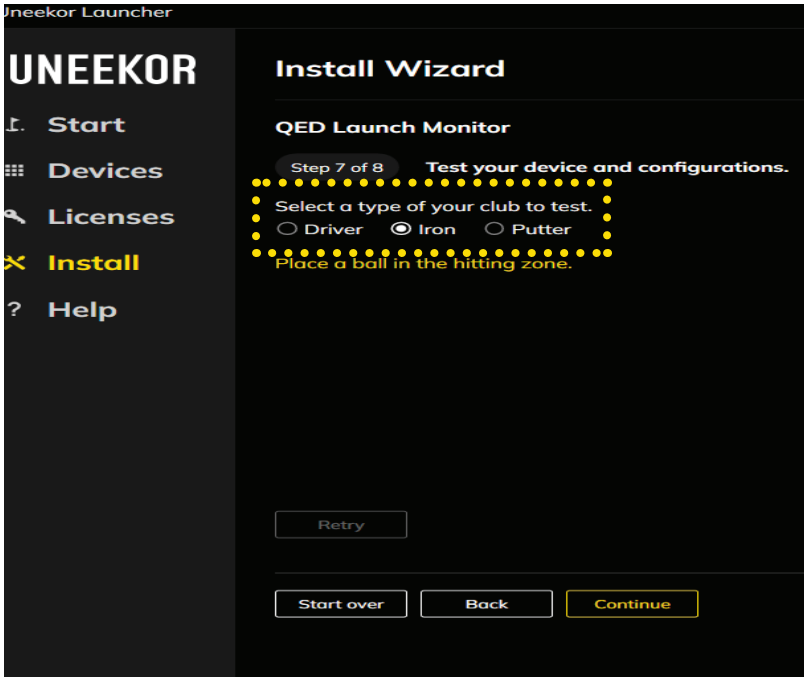
Calibrating

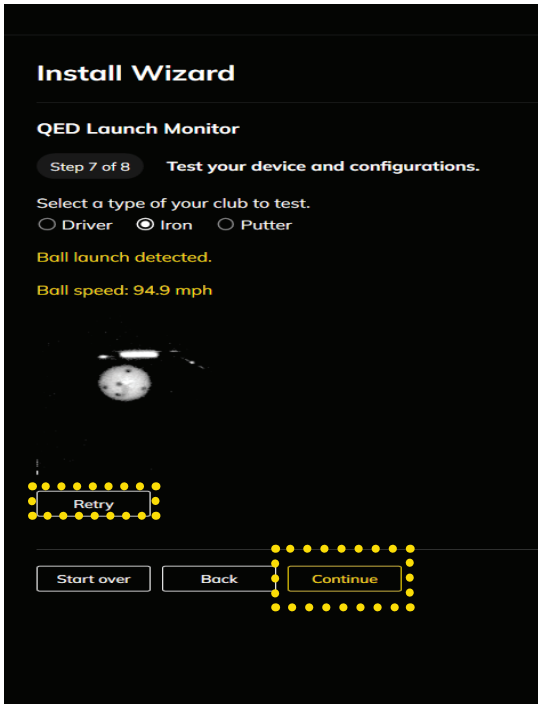
Step 6

Once the system is finished calibrating the launch monitor you will see the screen pictured to the right.

Please take a test shot to ensure the QED was calibrated correctly and operational.

Select the applicable club you will be testing and take a shot.





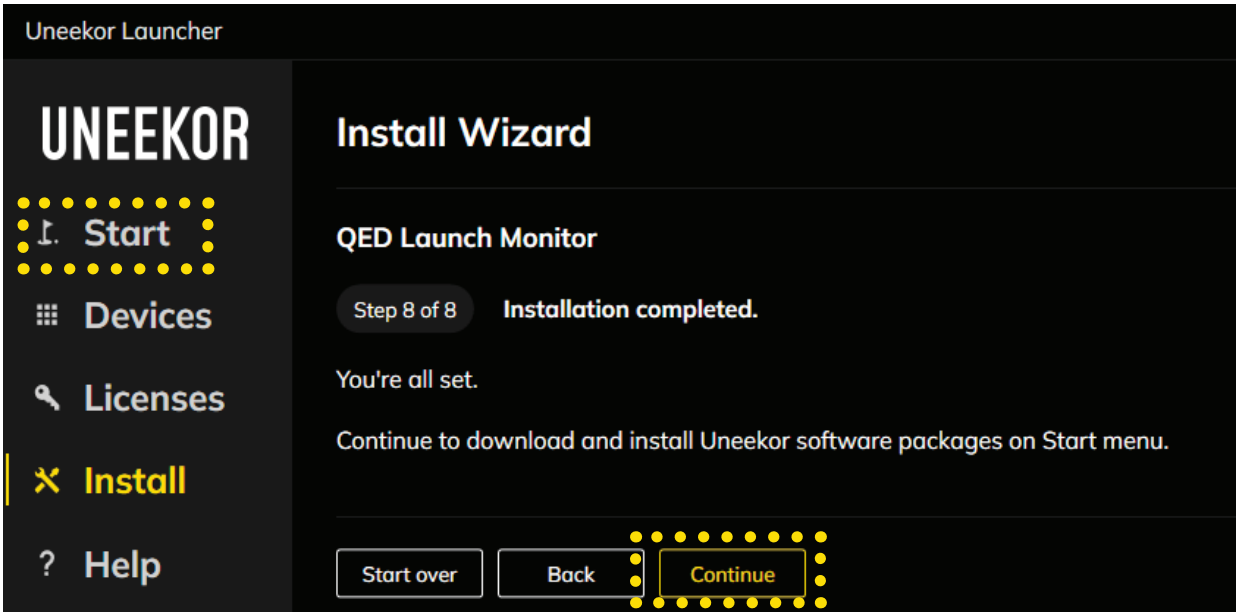
Step 4

If you are satisfied with the shot and data, click “Continue.” If you would like to take another shot, click “Retry” and select the applicable club you will be testing.

Step 7

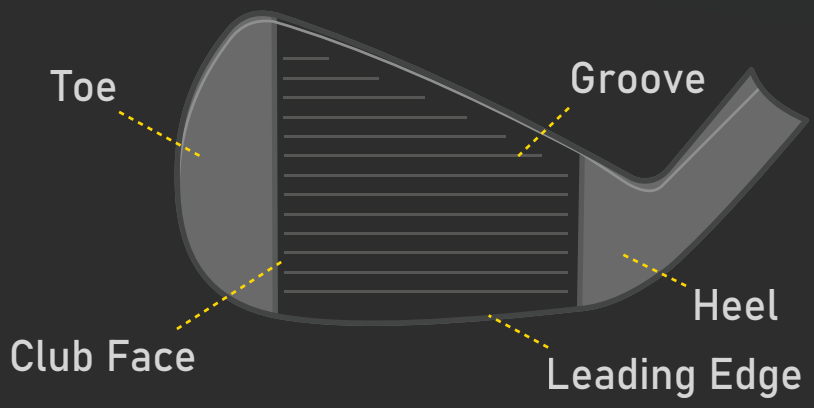
Installation and calibration of your QED is now complete.

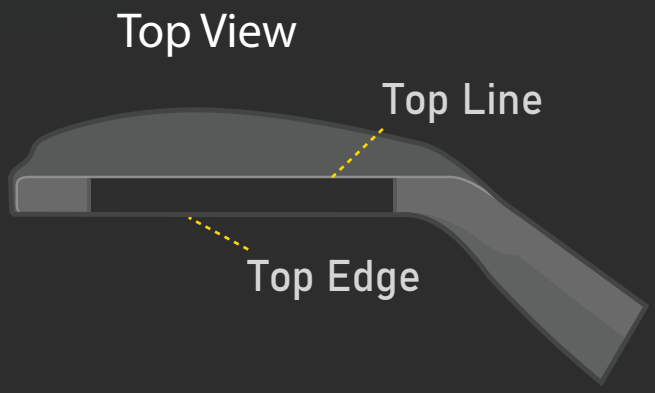
Click “Continue” and navigate to the “Start” tab on the left column to proceed to installing your View and Refine/ Refine+ software. *(Refine/ Refine+ sold separately)



QED IGNITE

Club and Sticker Placement





Stickers provided by Uneekor

20 stickers per page x 20 pages total

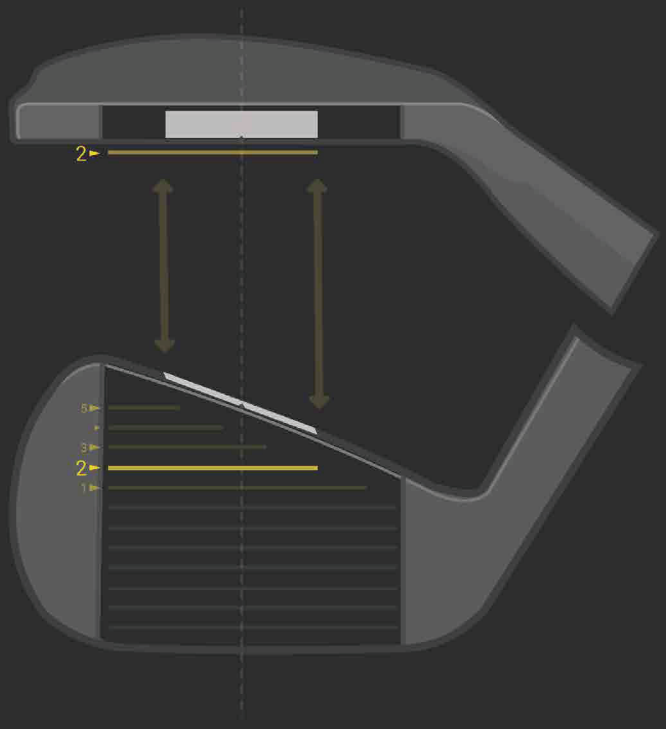
QED IGNITE

Club Data

Club Speed	The speed of the club before impact.
Smash Factor	The amount of energy transferred from the club head to the golf ball.
Face to Path	The angle difference between Face Angle and Club Path.
Club Path	The in to out or out to in movement of the club head's geometric center at the time of impact. Club Path is the direction (right or left) the club head is moving at impact and is measured relative to the target line.
Face Angle	The direction (right or left) the club face is pointed at impact. It is measured relative to the target line.

Sticker Placement

Irons & 5 Groove

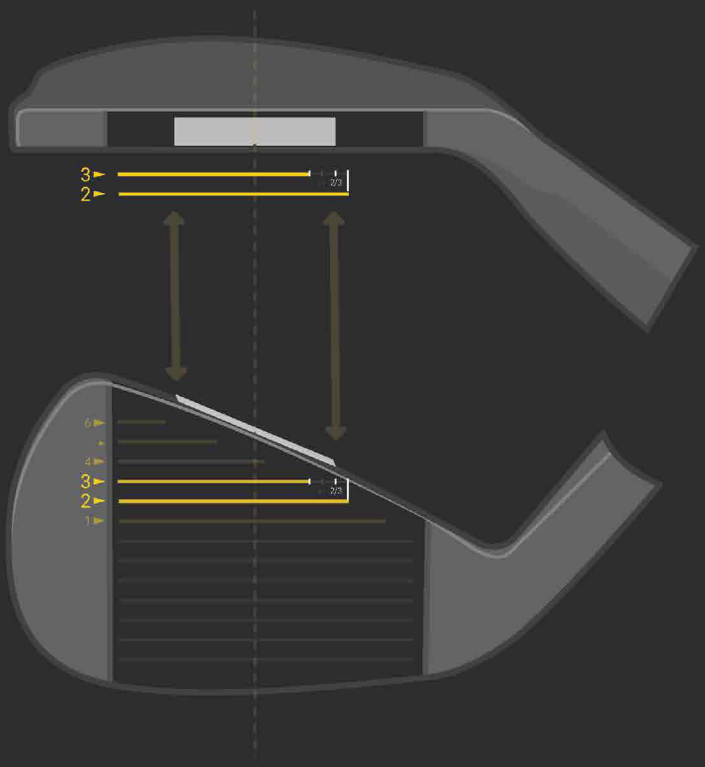


1. The area where the sticker is applied differs. Depending on the number of grooves where the length of the groove starts to reduce.
2. If there are five grooves of different sizes on the club face, attach the sticker to the top section based on the second longest groove.
3. In this diagram, the sticker should be close to the Top Edge lined up with groove number "2." Make sure the pointed cut is closest to the face of the club

QED IGNITE

Sticker Placement

2 Irons & 6 Groove

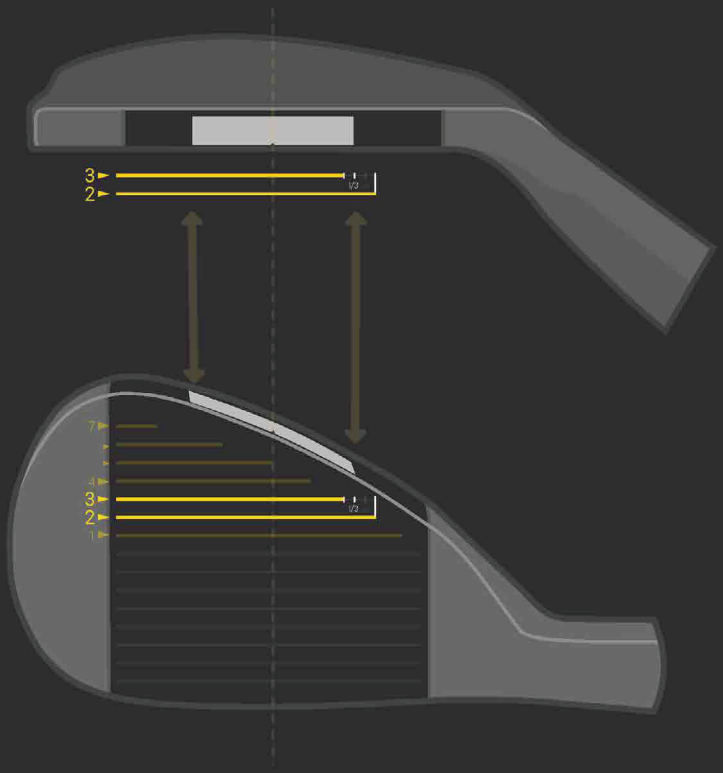


1. The area where the sticker is applied differs. Depending on the number of grooves where the length of the groove starts to reduce.
2. If there are 6 grooves of different sizes on the club face, attach it to the top section based on the 2/3rd difference on the 3rd groove of the shortening grooves.
3. In this diagram, the sticker should be close to the Top Edge lined up with the 2/3rd difference between groove “2” and “3.” Make sure the pointed cut is closest to the face of the club.

QED IGNITE

Sticker Placement

Irons & 7 Groove

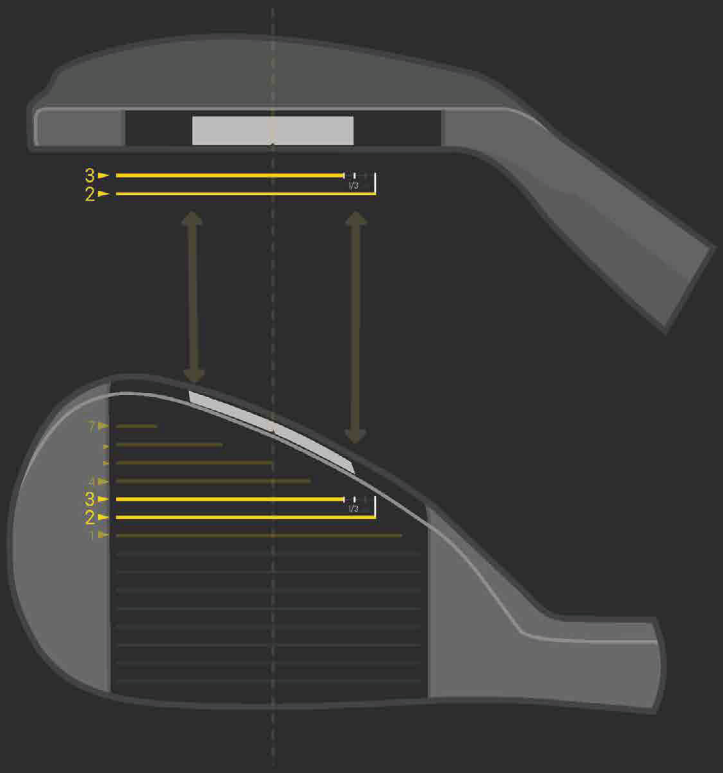


1. The area where the sticker is applied differs. Depending on the number of grooves where the length of the groove starts to reduce.
2. If there are 7 grooves of different sizes on the club face, attach it to the top section based on the 1/3rd difference on the 3rd groove of the shortening grooves
3. In this diagram, the sticker should be close to the Top Edge lined up with the 1/3rd difference between groove “2” and “3.” Make sure the pointed cut is closest to the face of the club

QED IGNITE

Sticker Placement

2 Irons & 8 Groove

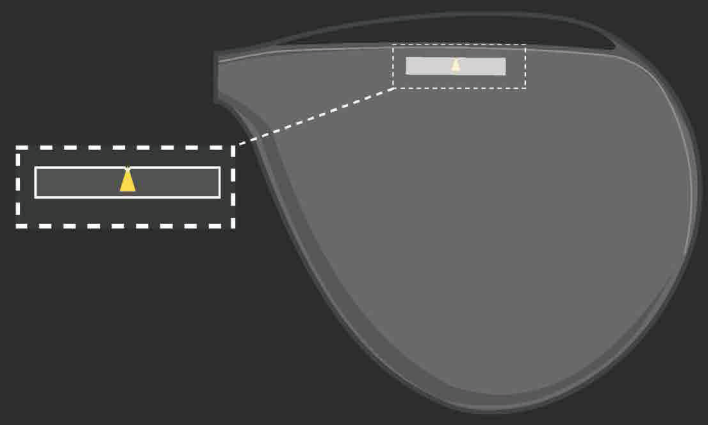


1. The area where the sticker is applied differs. Depending on the number of grooves where the length of the groove starts to reduce.
2. If there are 8 grooves of different sizes on the club face, attach it to the top section based on the 3rd groove of the shortening grooves
3. In this diagram, the sticker should be close to the Top Edge lined up with groove number “3” Make sure the pointed cut is closest to the face of the club

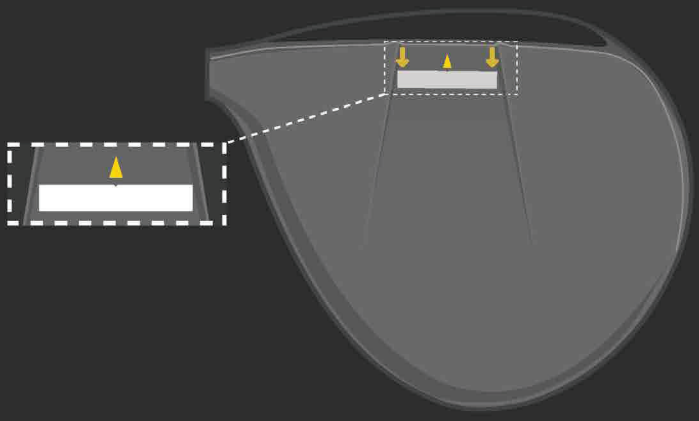
QED IGNITE

Sticker Placement

Driver, Hybrid, & Wood



1. The tip of the arrow in the crown area must be attached to the slit of the sticker.
2. The sticker should be attached horizontally to the top edge.
3. This method is preferred for all drivers, hybrids, and woods.

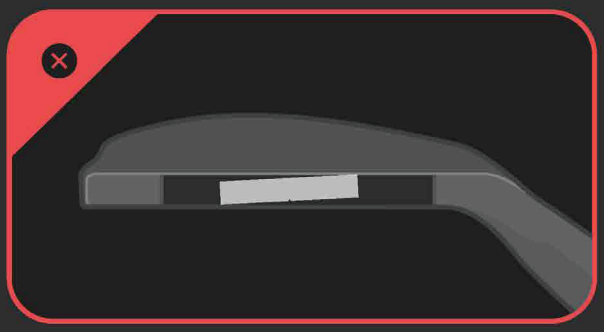


1. If the crown area is not a smooth surface, attach the sticker a little further back.
2. The sticker should be attached horizontally to the top edge.
3. This method is preferred if you cannot achieve the sticker placement on the left.

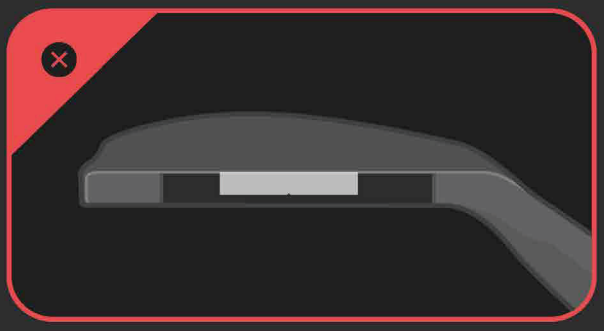
Note: For clubs without this arrow mark, the sticker must be attached at the top of the crown and point on the face

QED IGNITE

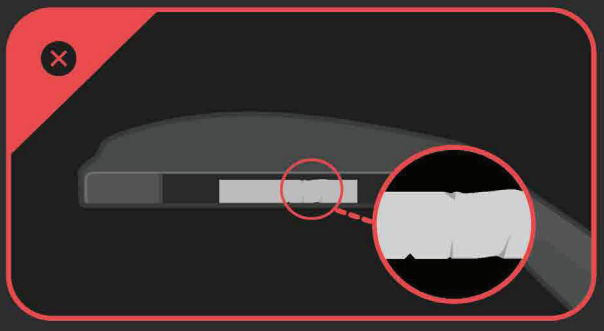
Incorrect Sticker Placement and Error



The sticker can not be crooked/slanted on the Top Edge.



The sticker can not be too high on the Top Edge. It must be centered.



The sticker can not be crumpled or damaged.

Note: If you do not avoid the incorrect sticker placements, you may not get the correct club data.

Appendix

Understanding the Data

Club Data

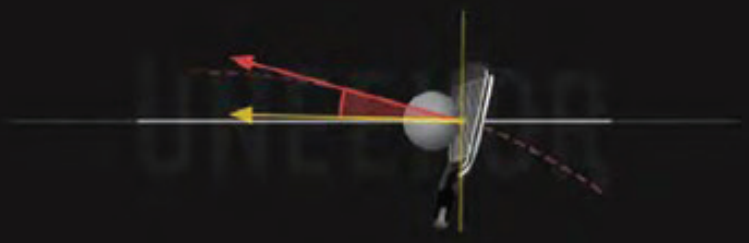
Club Speed

The speed of the club before impact.

Smash Factor

The amount of energy transferred from the club head to the golf ball.

Face to Path



The amount of energy transferred from the club head to the golf ball.

Appendix

Cont.

Understanding the Data

Club Data

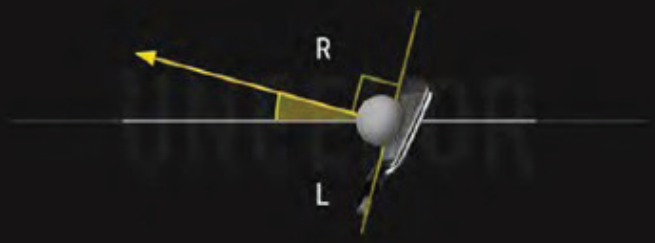
Attack Angle

The up and down movement of the club head at the time of impact. Attack angle is measured relative to the horizon.

Club Path

The in to out or out to in movement of the club head's geometric center at the time of impact. Club Path is the directon (right or left) the club head is moving at impact and is measured relative to the target line.

Face Angle



The direction (right or left) the club face is pointed at impact. It is measured relative to the target line.

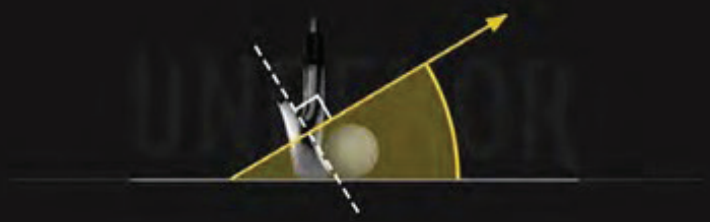
Appendix

Cont.

Understanding the Data

Club Data

Dynamic Loft



The amount of loft of the club face at the center point of impact.

Club Lie Angle

Lie angle is the angle created between the center of the shaft and ground when you put your iron down in the address position.

Impact Point

Vertical, Horizontal

Where you strike the ball on the club face.

Appendix

Cont.

Understanding the Data

Ball Data

Ball Speed

Measurement of the golf ball's velocity measured just after impact with the club face

Side Spin

Measurement of horizontal spin on the golf ball that causes your golf ball to slice or draw

Back Spin

Measurement of reverse rotation of the golf ball in relation to the ball's trajectory (Backspin generates an upward force that lifts the ball)

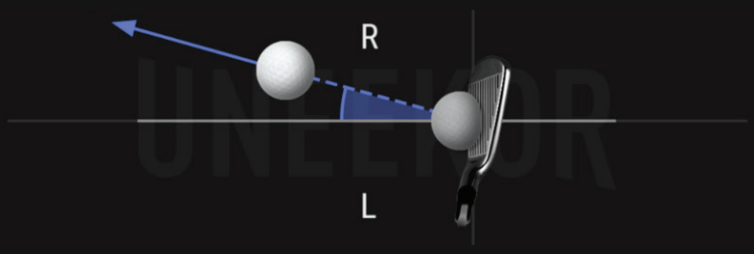
Appendix

Cont.

Understanding the Data

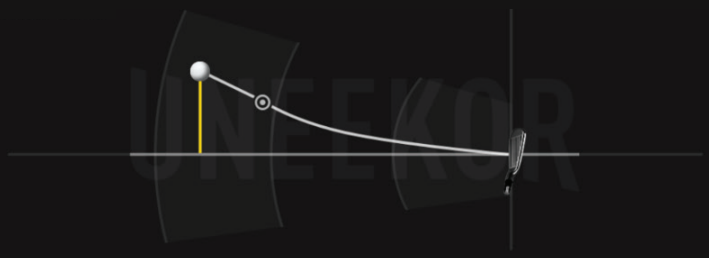
Ball Data

Side Angle



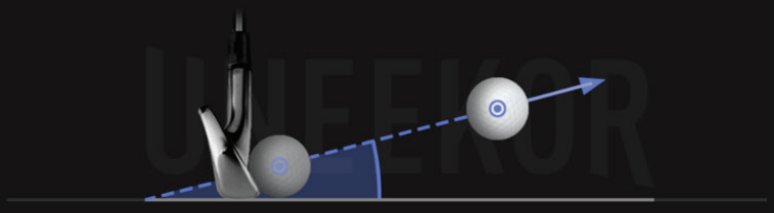
Angle at which the ball starts its flight, relative to a straight target line (Horizontal launch angle)

Side Total



Distance the ball travels in the air left or right of the target

Launch Angle



The initial angle of ascent of the golf ball just after impact (relative to the ground)

Appendix

Cont.

Understanding the Data

Ball Data

Angle of Descent

The angle the golf ball comes down after hitting the apex

Flight TIme

The total amount of time that the golf ball spends in the air prior to landing on the ground

Distance to Apex

Distance the ball travels in the air before hitting the peak height of the ball's trajectory

Appendix

Cont.

Understanding the Data

Ball Data

Carry

Distance the ball travels in the air

Run

Distance the ball travels after making contact with the ground

Total Distance

Total distance the golf ball travels including the carry and roll

Specifications

Items	Contents
Components	2 High Speed Cameras w/ 2 Infrared LED Boards 1 Control Board 1 Power Board
Data Interface	Ethernet (CAT6 and above)
Communication Speed	1 Gbps
Spin Data	Total Spin ±12,000 rpm
Measurement Range	Ball Speed Putter: 0.1 m/s ~ 30 m/s Ball Speed Driver/Iron: 5 m/s ~ 100 m/s
Sensing Angle	Driver: -5 ~ 50 Degree Iron: 0.1 ~ 80 Degree

Links

Appendix

Launcher Overview Guide

Uneekor Laucher

Resources

Support

FAQ

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