

GOLF IMPACT LLC

Golf Dynamics Pro: Users Manual



FCC Information:

GOLF IMPACT LLC - FCC ID: XSCDYNPRO

GOLF IMPACT LLC - FCC ID: XSCDYNUSB

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE D OPERATION.

THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT .

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Introduction: Golf Dynamics Pro

Congratulation on your purchase of the Golf Dynamics Pro product. Golf Impact LLC's Golf Dynamics Pro is a first of a kind real time swing and impact analyzer available to the consumer market. The product consists of three main components:

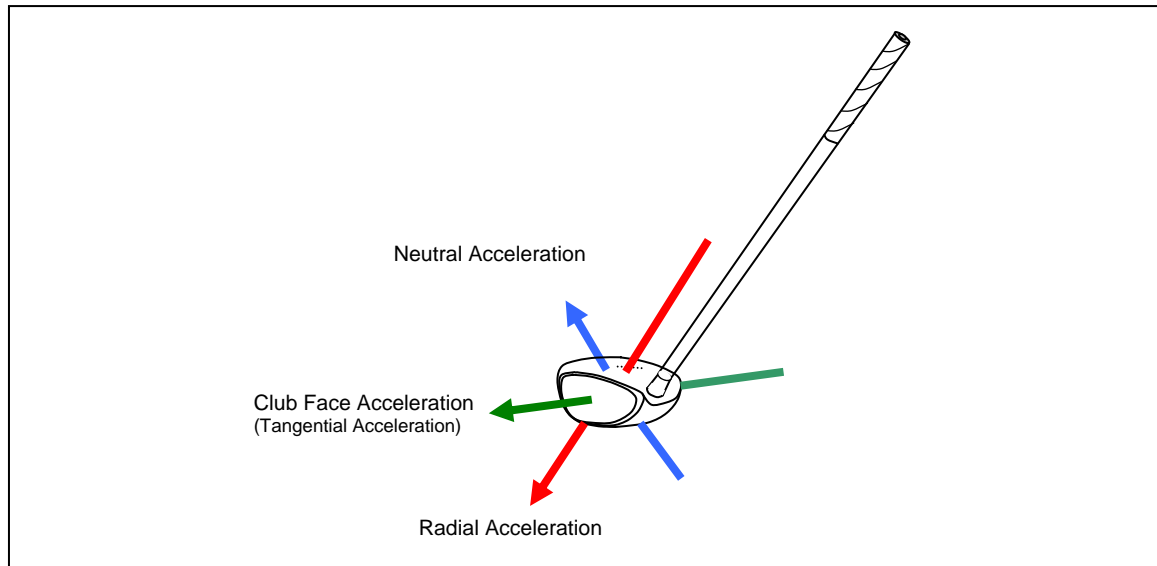
- “Club Head Module” : measures physical parameters of the club head motion and wirelessly transmits those results.
- “USB Module” : receives the wireless signal from the golf club head module and transfers that information into your laptop for processing.
- “Application Software” : Software that is loaded one time on your computer and resides on your laptop computer. The application software does computations on the information it receives from the “Club Head Module” then converts it to usable information for the Golfer.

The product is a combination of advanced sensor and wireless technologies married with sophisticated computation analysis software applications that reduce immense data results into meaningful and easy to understand metrics that are important to golfers such as:

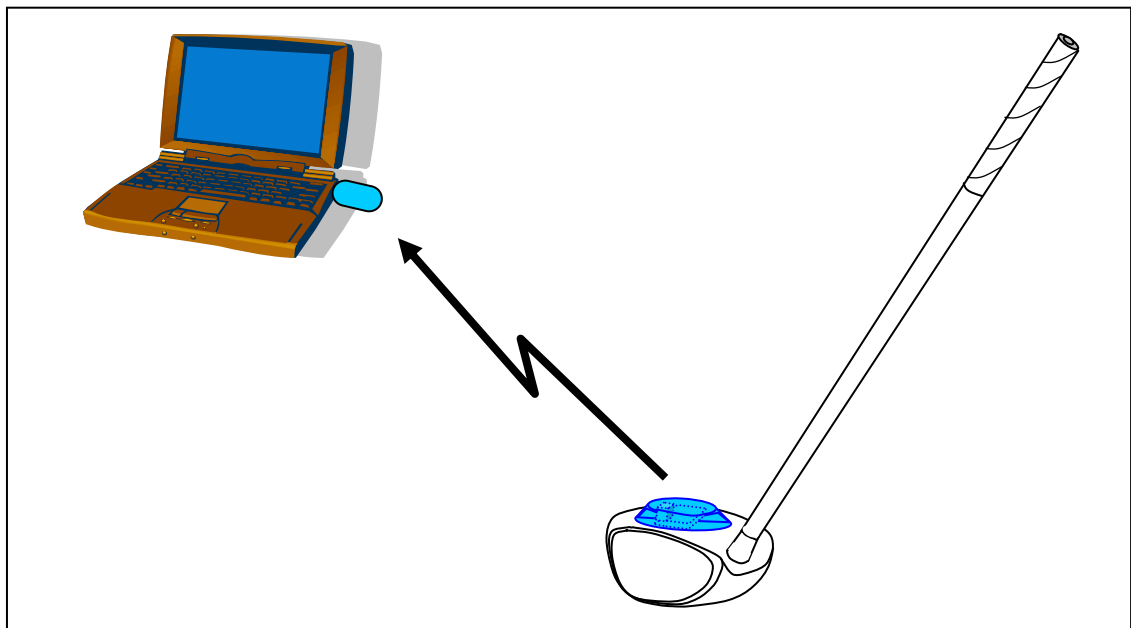
- Golf club head time varying velocity profile.
- Multi-dimension acceleration profiles for your entire swing including backswing, pause, power stroke, impact and follow through.
- Full swing consistency comparison from swing to swing.
- Oscillation that can occur at club head from shaft wobble.
- Club face acceleration at maximum velocity.
- Club head rotation timing and rate of rotation during follow through.
- Time duration of back swing.
- Time duration of pause.
- Time duration of power stroke (down swing).

How the “Golf Dynamics Pro” Works

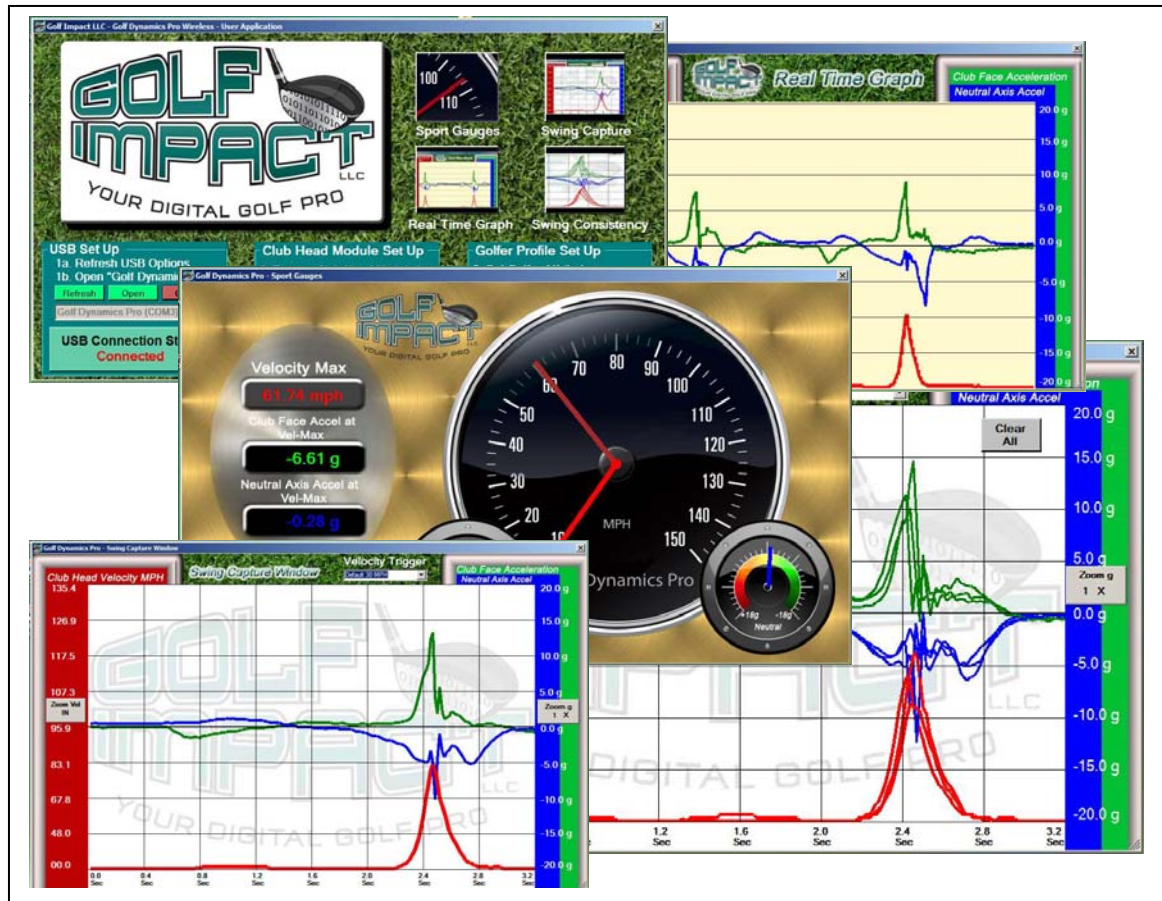
How the Golf Dynamics Pro works is a combination of three accelerometers arranged to measure each of the axis directions of the club head as shown in Figure 1. This diagram shows the direction reference of each axis. However, the actual point of measure is slightly above the club head top surface.



The sensor data collected by the “Club Head Module” is then transmitted wirelessly to the USB Module which is plugged into your computer or laptop, as shown below.



Once the computer receives the data, the “User Application” software processes that data instantaneously into useful information for presentation to the golfer through a rich graphics interface on the computer screen.



The following chapters in this users guide will describe in more detail the product, how to use the product, and review results.

What is included in the box

The contents of the box you receive should include the following items.

1. Quick Start Guide:

The quick start guide is printed and included in your box to allow fast set up the Golf Dynamics Pro software.

2. Club Head Module:



3. USB Module



4. Golf Dynamics Pro CD:



5. Batteries CR2032:

Your package includes two coin type lithium batteries that are CR2032 in size. This is a standard size and can be purchased in many retail locations.

6. Double Sided Adhesive Tape

Your package includes 4 strips of double sided adhesive tape for attaching the “Club Head Module” to the golf club head. The tape is 3M Multipurpose Indoor Mounting Tape 4008.

7. Rubber Tape Removal Pad

The rubber pad included in your product package is to help remove left over tape on the club head after the “Club Head Module” is removed.

If you do not have any of these components when you receive your package or any of the items appear to be damaged, please go to the Golf Impact website, www.golfimpactstore.com/return-policy.aspx.

Computer System Requirements

The Golf Dynamics Pro product requires a computer with the following attributes:

- Operating System: Window XP (Service Pack 3) or Vista 32 bit.
- Screen Display Resolution : Minimum Resolution 1024x768.
- Processor:: 1.5 GHz Processor or above.
- Memory RAM: 1 GByte or greater.
- USB 2.0 Ports: Must have at least one free USB port available.
- For Outdoor Use: It is recommended that the Laptop have a non glossy non glare screen for better viewing in sunlight.

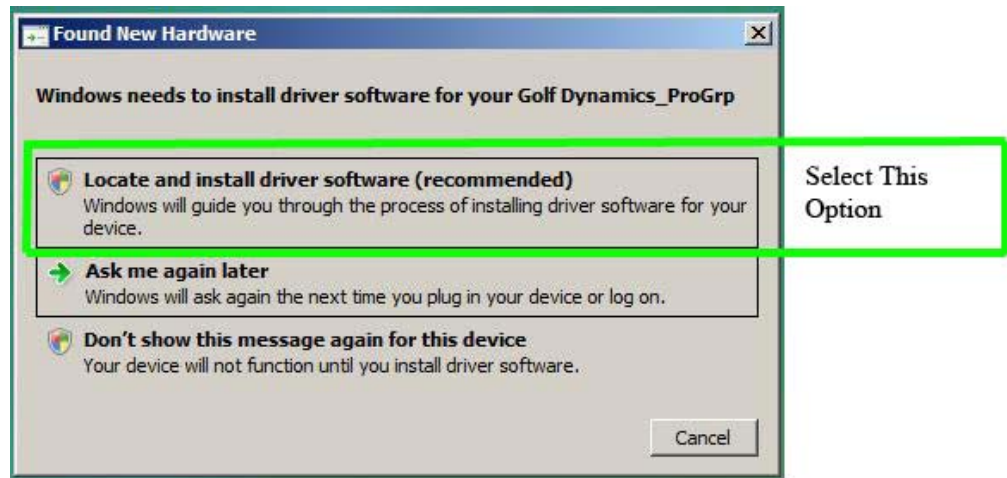
Quick Start - Using Golf Dynamics Pro Right Now

Install Driver Software

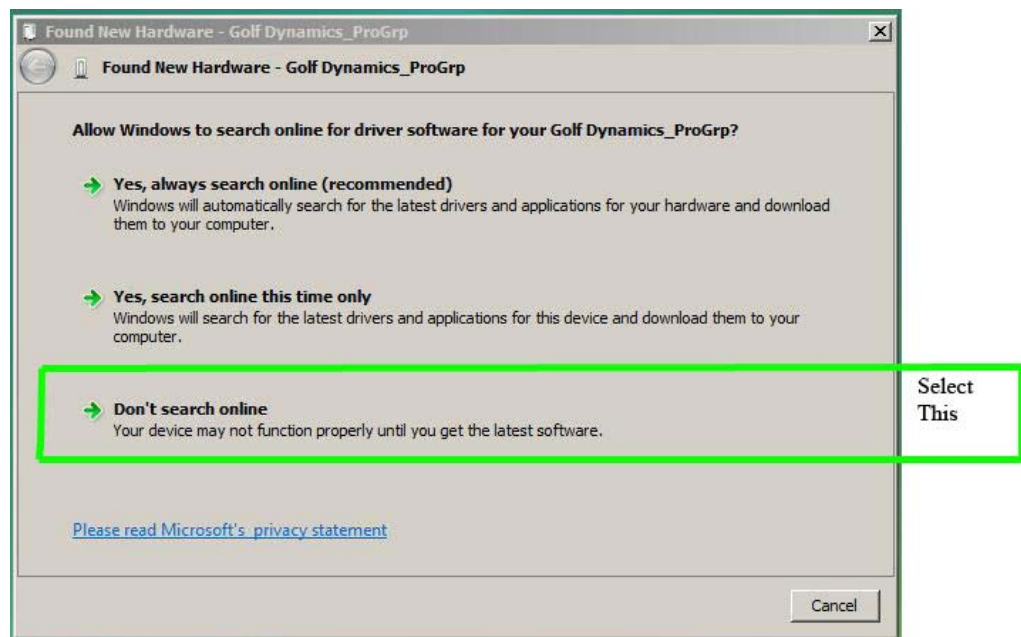
There are a few simple steps that are required to get you up and running immediately. This can be done in a step by step procedure.

VISTA OPERATING SYSTEM DRIVER INSTALLATION PROCESS

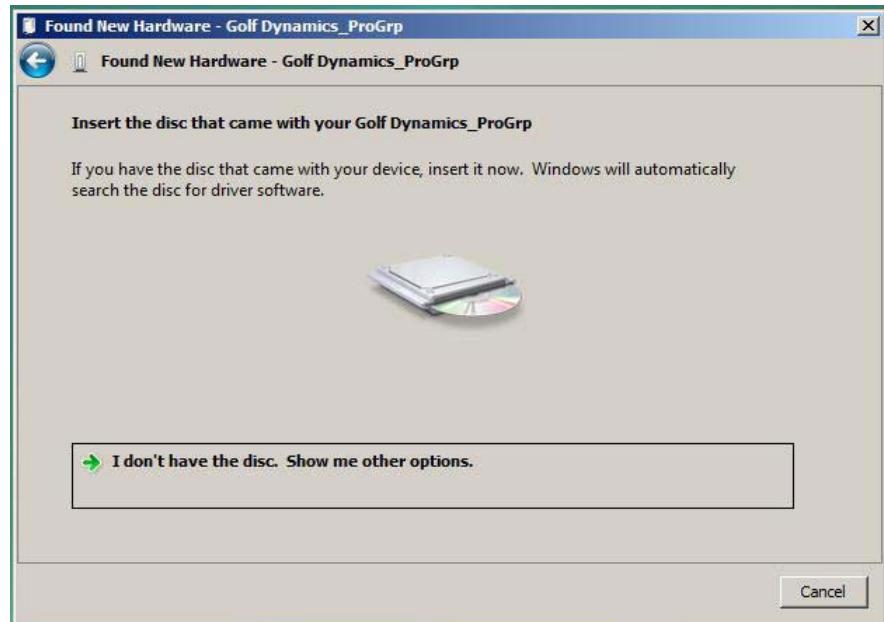
1. Insert Golf Impact USB Module into an available USB port on your computer. You should see the Following screen appear. Select the top option “Locate and install driver software”



2. Now the install wizard will ask you where to search for the Golf Dynamics driver files. Since they are located on the CD provided in your package, you need to select “Don't Search online” as shown below.

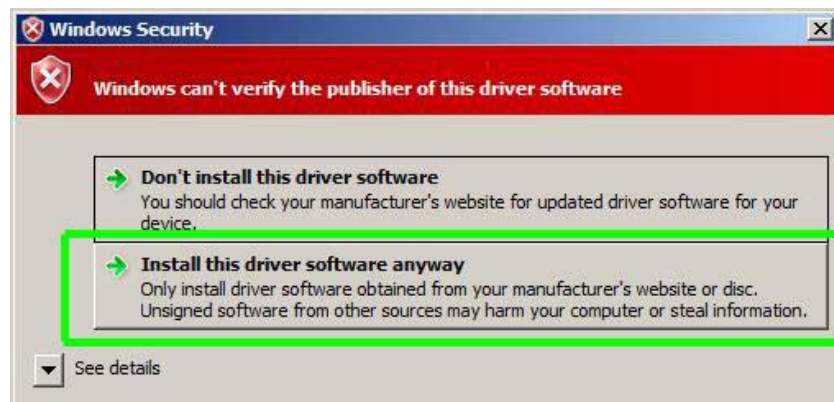


3. Now insert the Golf Dynamics Pro CD into your computer's CD/DVD drive.



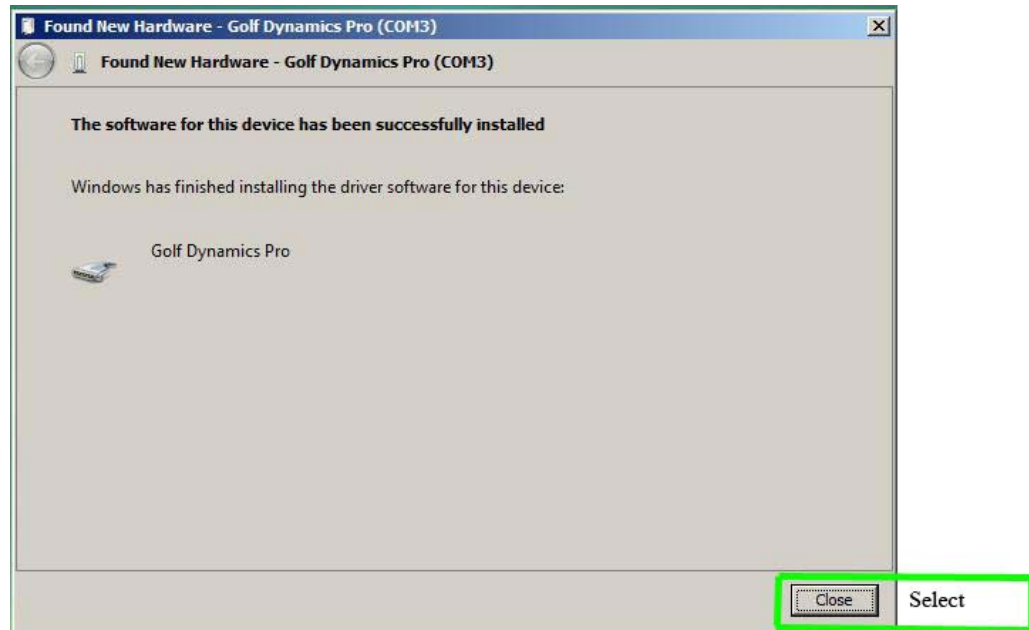
Insert Golf
Dynamics Pro
CD Disc

4. Now a Microsoft window will appear that asks if you want to continue with installation, so you select "Install the driver software anyway" as shown below.



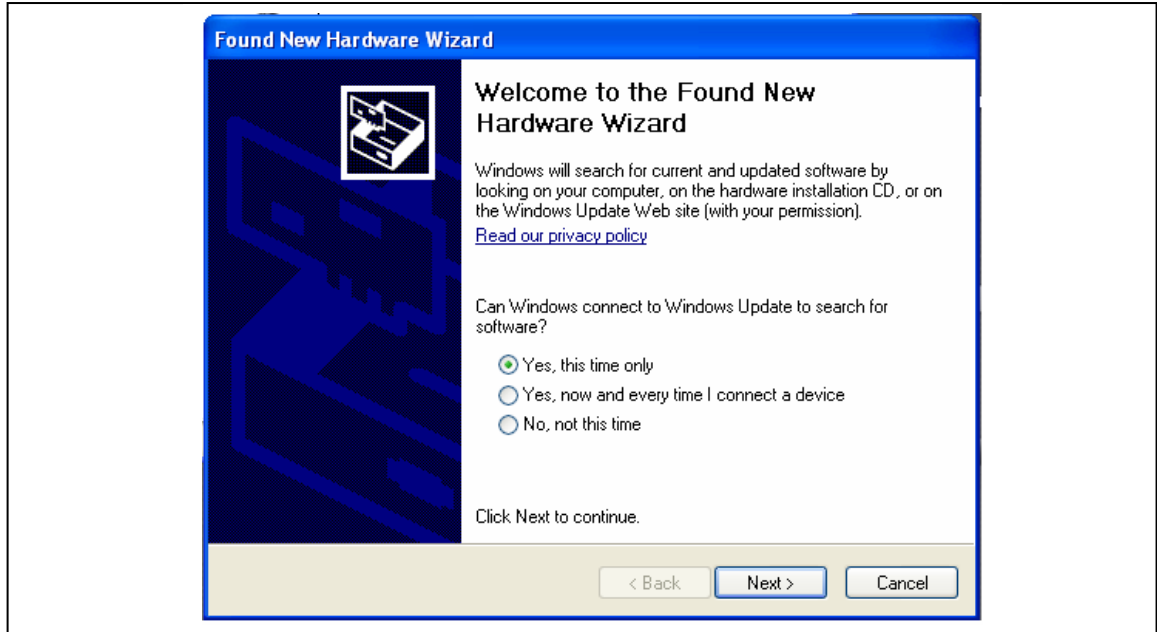
Select This

5. Now you have completed the installation of the drivers for your Golf Impact product Golf Dynamics Pro. Now simply select the close button to complete the software driver installation.

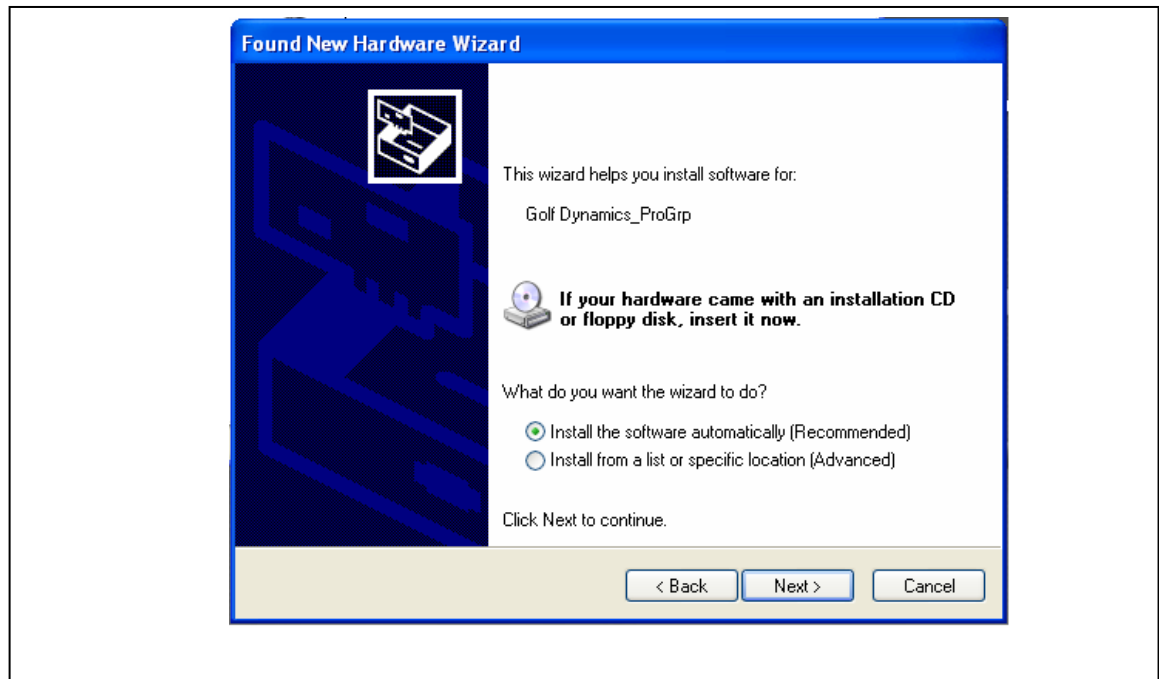


XP OPERATING SYSTEM DRIVER INSTALLATION PROCESS

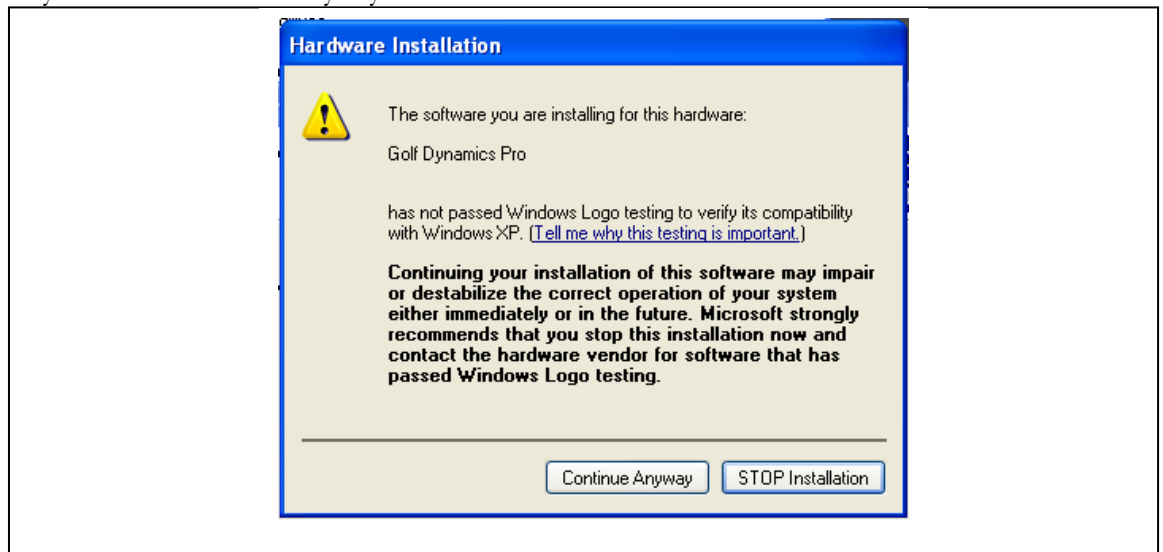
1. Insert “USB Module” into an available USB port on your computer. You should see the Following screen appear. Select the top option “Yes, this time only”



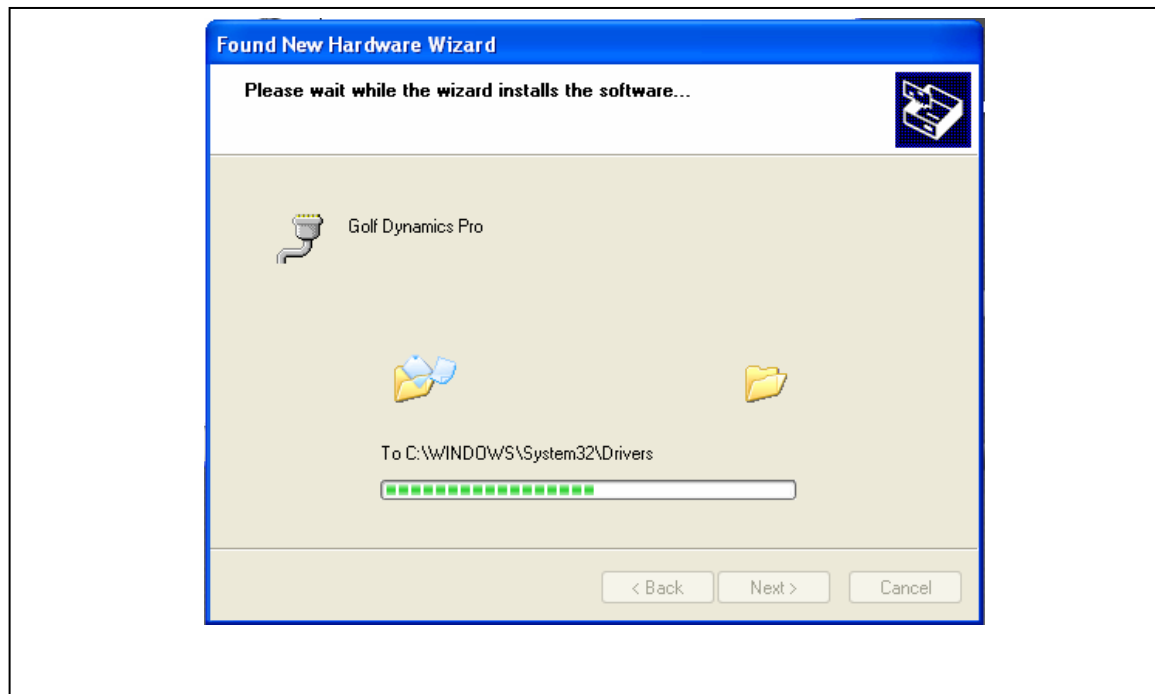
2. Now the install wizard will ask you where to search for the Golf Dynamics driver files. Since they are located on the CD provided in your package, you need to first insert the CD into the computers CD/DVD drive and then select “ Install the software automatically (Recommended)” as shown below.



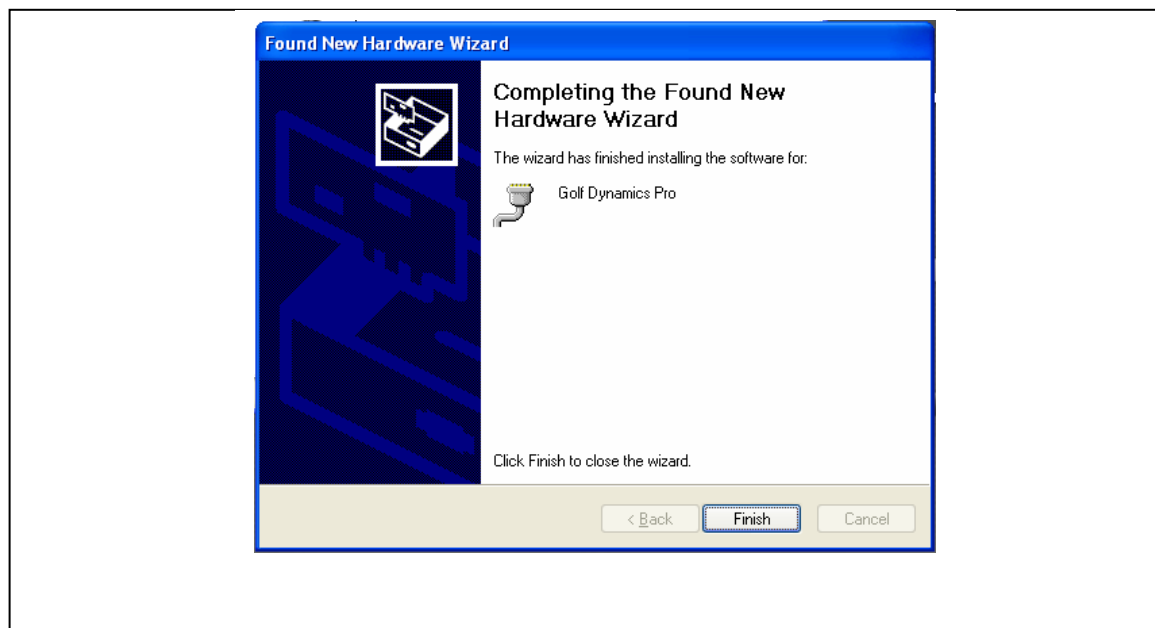
3. Now a Microsoft window will appear that asks if you want to continue with installation, so you select “Continue anyway” as shown below:



4. Now a Microsoft window will appear briefly that shows file install progress.

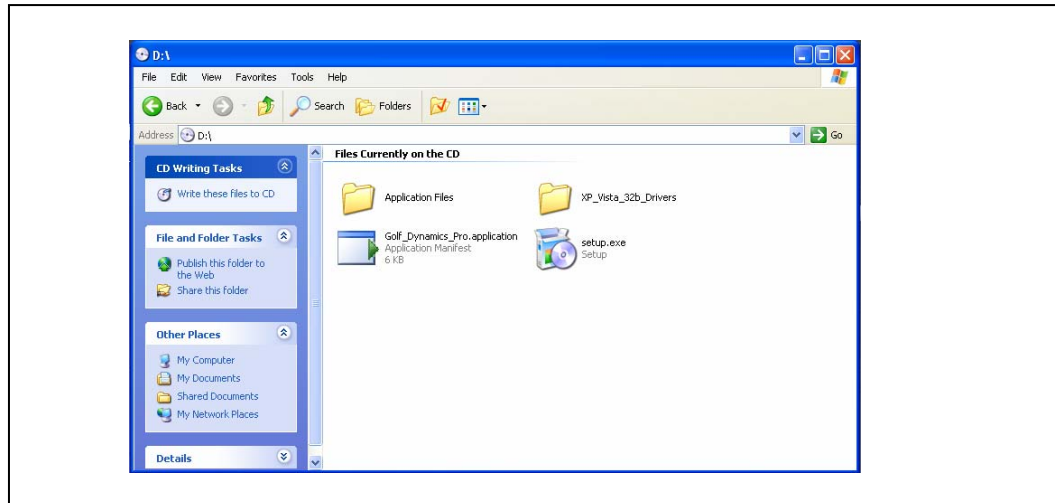


5. Now you have completed the installation of the drivers for your Golf Impact product Golf Dynamics Pro. Now simply select the close button to complete the software driver installation.

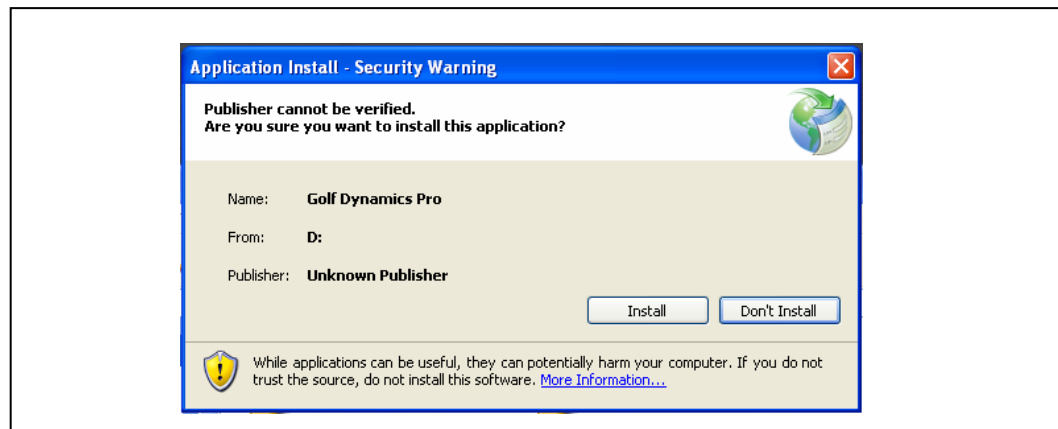


Install User Application Software

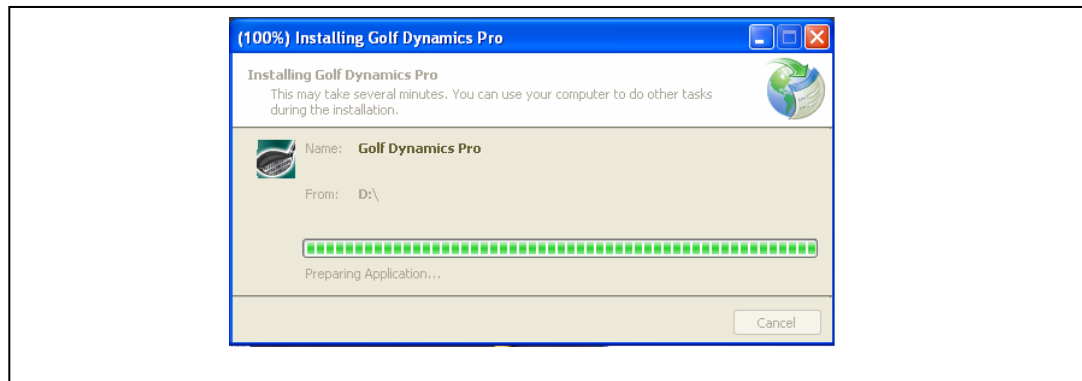
1. Navigate to Golf Impact CD in you DVD/CD drive.
2. Click on the “Setup.exe” file that will install the user application.



3. The standard installation security notices appear, click install.



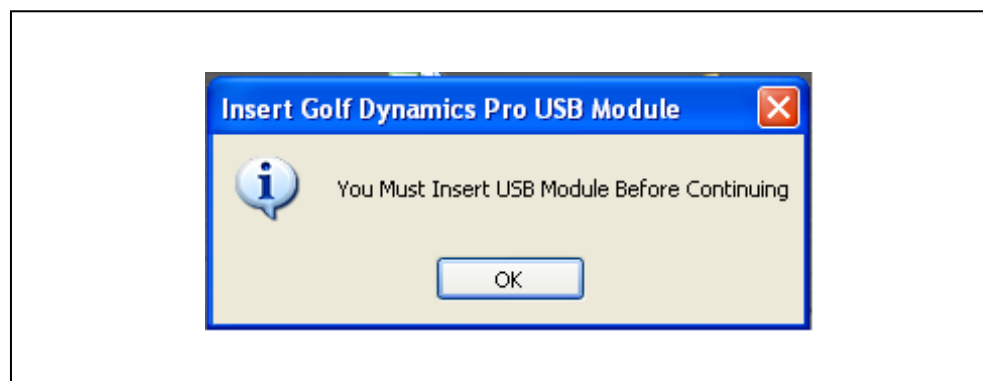
4. Now a window appears briefly as the necessary files are installed.



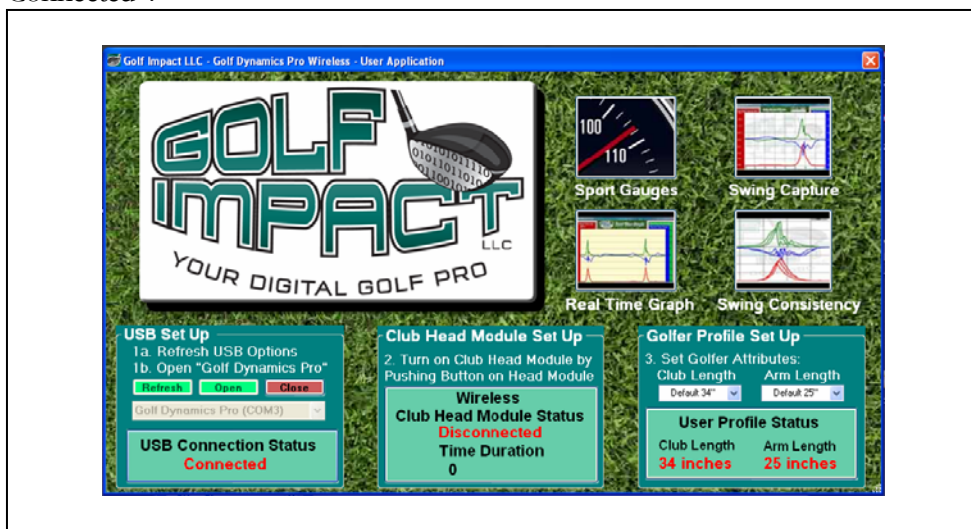
5. Once installed the program should automatically start running, if it does not it is now available in the start menu of your computer.



- a. If you do not have the “USB Module” plugged into the computer you will be prompted to do so.



- Now initiate the USB device communication with the computer by clicking the “Open” button and you will see the USB connection status change from “Disconnected” to Connected”.



Mount and Turn on Club Head Module

- Using doubled sided tape provided, attach “Club Head Module” to club head.
- Push button on Club Head Module and you will see the “Wireless Club Head Module Status” change from “Disconnected to Connected”.



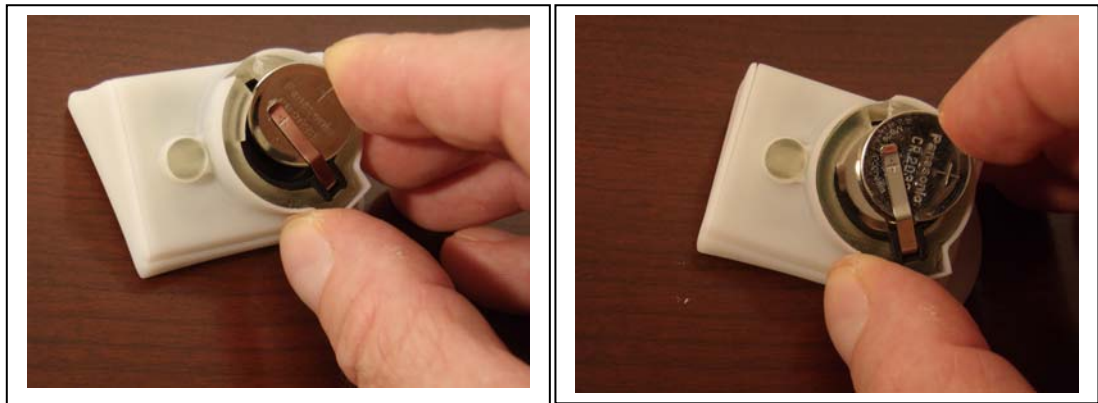
You should now be up and running and can select any of the four “User Applications” by clicking on their representative image in the upper right quadrant of the main window shown above.

Installing and Removing Batteries

The installing and removing batteries with the correct procedure is important to ensure the device is not physically damaged. The batteries in the club head module have been designed to be very firmly held in place because of the extreme forces that the club head module experiences.

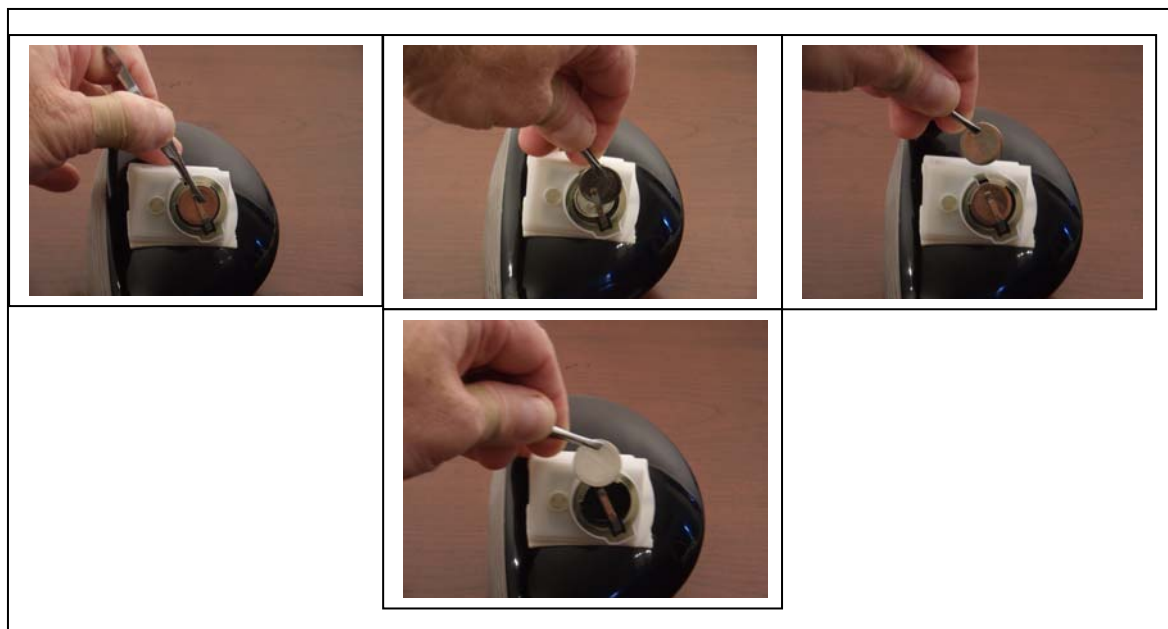
Battery Installation

The correct procedure for installing the coin batteries (standard size CR2032) is done by sliding the batteries in from the side of the clip one at a time as shown in the image below.



Battery Removal

The procedure for removing the batteries requires the use of standard tweezers, in which one battery at a time is removed. As shown in the image below, insert the tweezers in the slot in the front of the housing and firmly grip the battery, then lift the front of the battery and pull out of the housing while avoiding bending the metal spring tab that contact the top of the batteries.

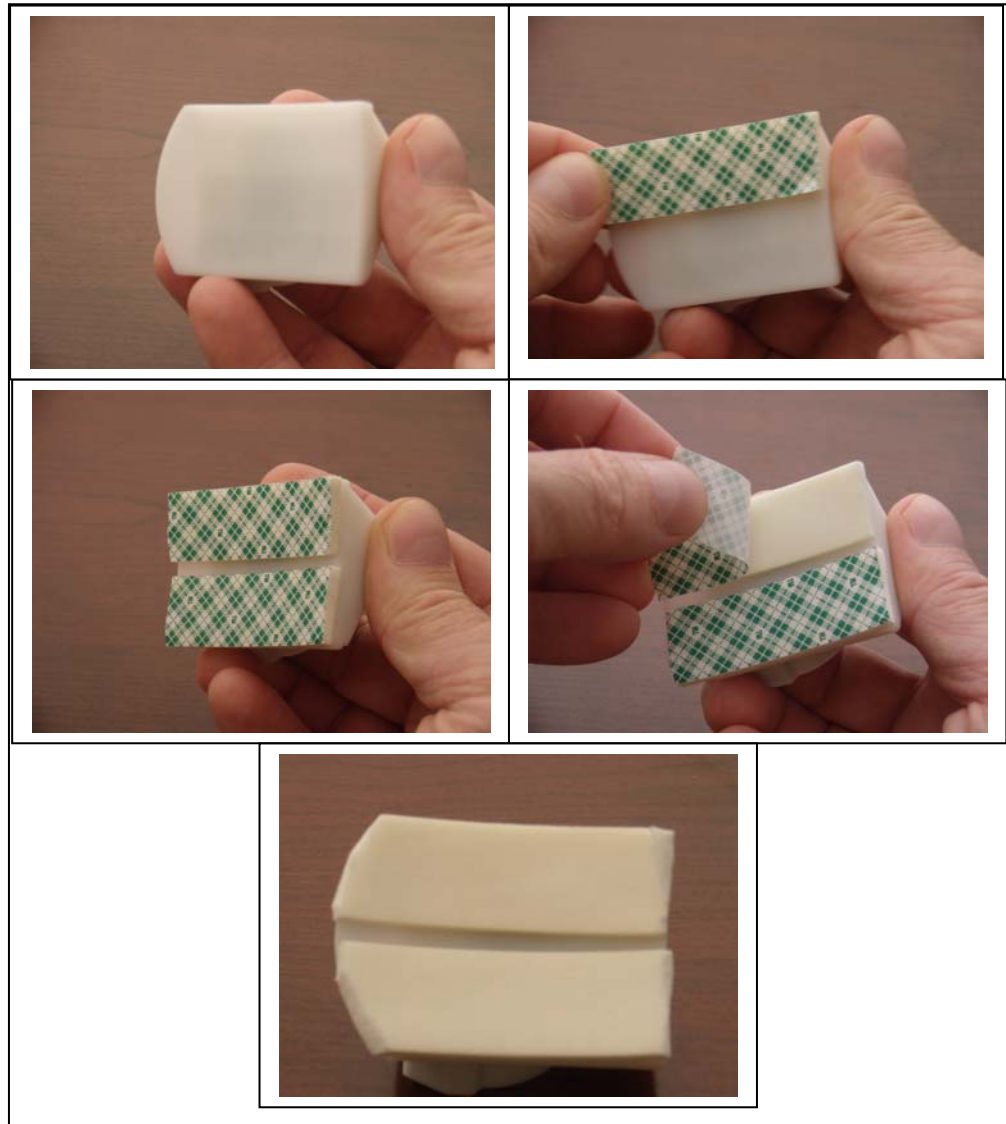


Attaching and Removing Club Head Module

Attaching the Club Head Module to Golf Club Head

The attachment of the Club Head Module to the golf club head is a simple two step procedure.

Apply two strips of double sided tape to the bottom of the Club Head Module as shown in the image below:



Align the front of the Club Head Module parallel with the club face and align about $\frac{1}{2}$ inch back from the club face and firmly press the module onto the club head as shown below. The double sided adhesive tape is the 3M 4008 tape which is $\frac{1}{8}$ " thick.



Removing the Club Head Module from the Golf Club Head

Removal of the club head module from the club head is done by gradually pulling upward on the back of the club head module letting the tape release from the club head. Sometimes the tape will separate in the middle as shown below.



Once the club head module is removed, the remaining tape must be removed from the club head. One method is to roll the tape off of the club head with your thumb, which is the safest way to remove the tape without damaging the club head paint.



For removing the tape remains from the Club Head Module, use the same technique with your thumb and then clean with rubbing alcohol so the surface is shinny and the module is then ready for future use.

Golf Dynamics Pro User Applications Software and Usage

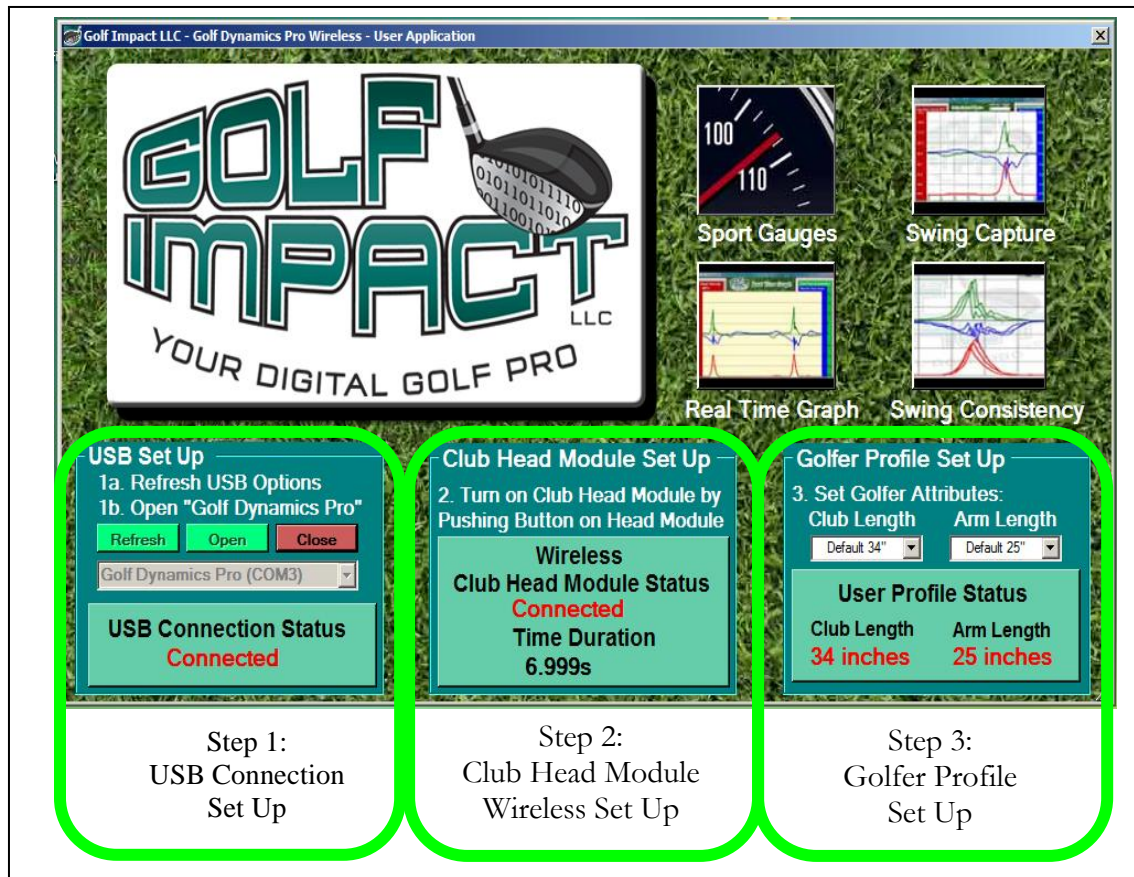
Launching The Golf Dynamics Pro Application

The first step is to always insert the Golf Dynamics USB Module into a USB port on your computer. Then you go to the “Start” menu on your computer and select view all application and then select the folder named “Golf Impact LLC” and then double click the “Golf Dynamics Pro” application.



Golf Dynamics Pro Main Application Window

Now the Golf Dynamics Pro Main Application window opens as shown below which allows you to set up your Golf user session. The main window is comprised of three steps to start your golf session:



1. **USB Set Up:** Enable the communication between the Golf Dynamics USB Module and your computer operating system. This is done by left clicking the “Refresh” button in the USB set up block. Then you will see “Golf Dynamics Pro (Com#)” shown in the selection window. Now left click the “Open” button, which changes the USB connection status from “Unconnected” to “Connected”.
2. **Club Head Module Set Up:** This step enables the wireless communication between the USB Module and the Club Head Module. Simply push the button on the top of the Golf Club Head Module as shown below. In 1 to 2 seconds the Club Head module registers with the USB module and the wireless link is enabled. In the “Club Head Set Up” block of the “Golf Dynamics Pro Main Application” window the status of the “Wireless Club Head Module Status” Changes from “Disconnected” to “Connected”.
3. **Golfer Profile Set Up:** The step allows the correct calculations of some of the golf swing metrics that are displayed in the user application windows. Using the pull down menus, select the “Club Length” and “Arm Length” in inches. The club length is defined as the distance between the bottom of the lower hand on the grip to the top of

the club head. The arm length is defined as the distance from the top of your shoulder to the center of the palm of your hand.

Now your system set up is complete and you now are ready to use the system and view your golf metrics through a variety of user application.

Golf Dynamics Pro – User Software Applications

Main Application Window, allows you to select any of four different applications to view golf data and golf metrics. The four different user applications are named:

- Sport Gauges
- Real Time Graph
- Swing Capture
- Swing Consistency

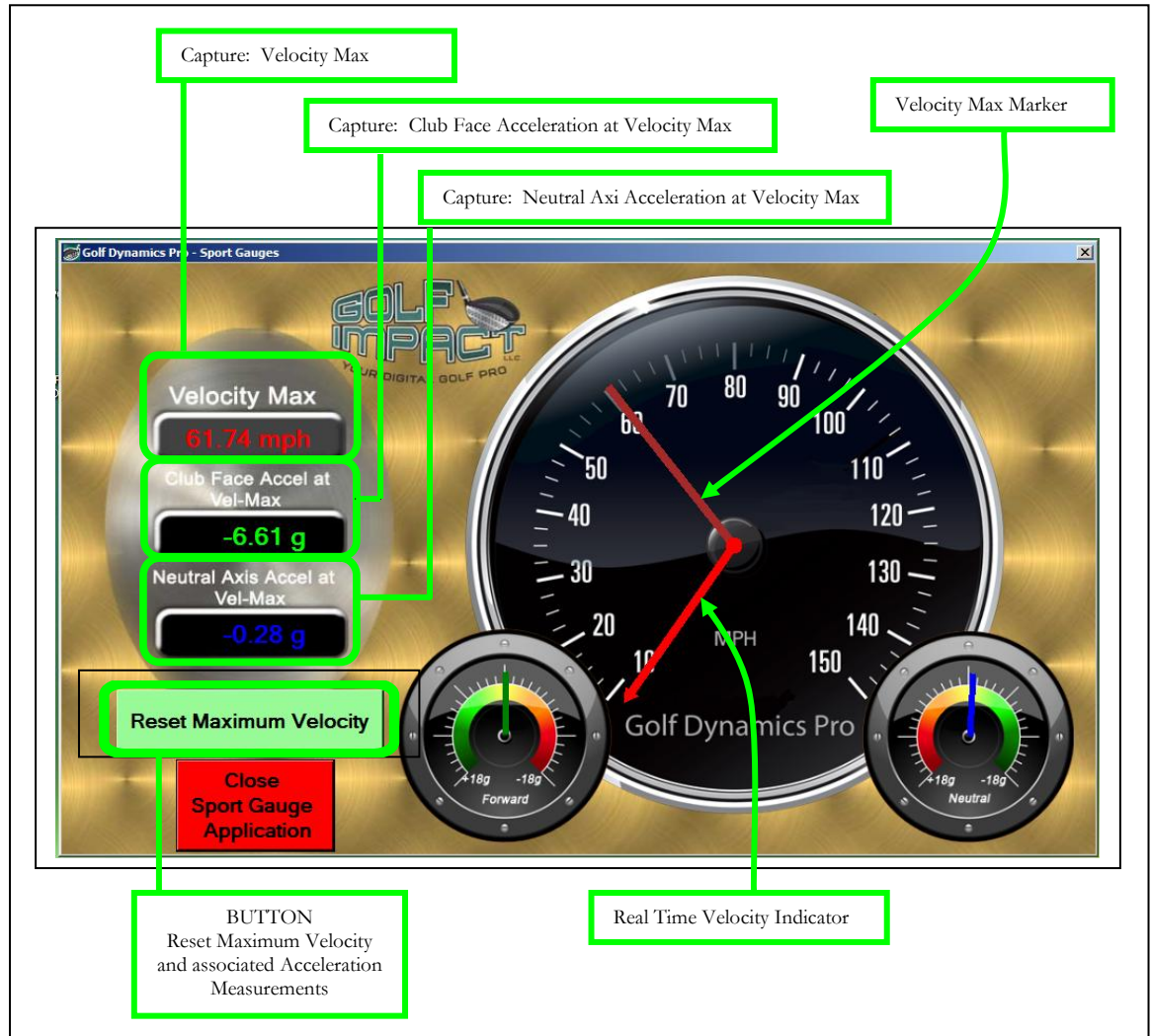
The user applications are launched by simply clicking on the image representing that application.

User Applications:
Select by Clicking On
Image



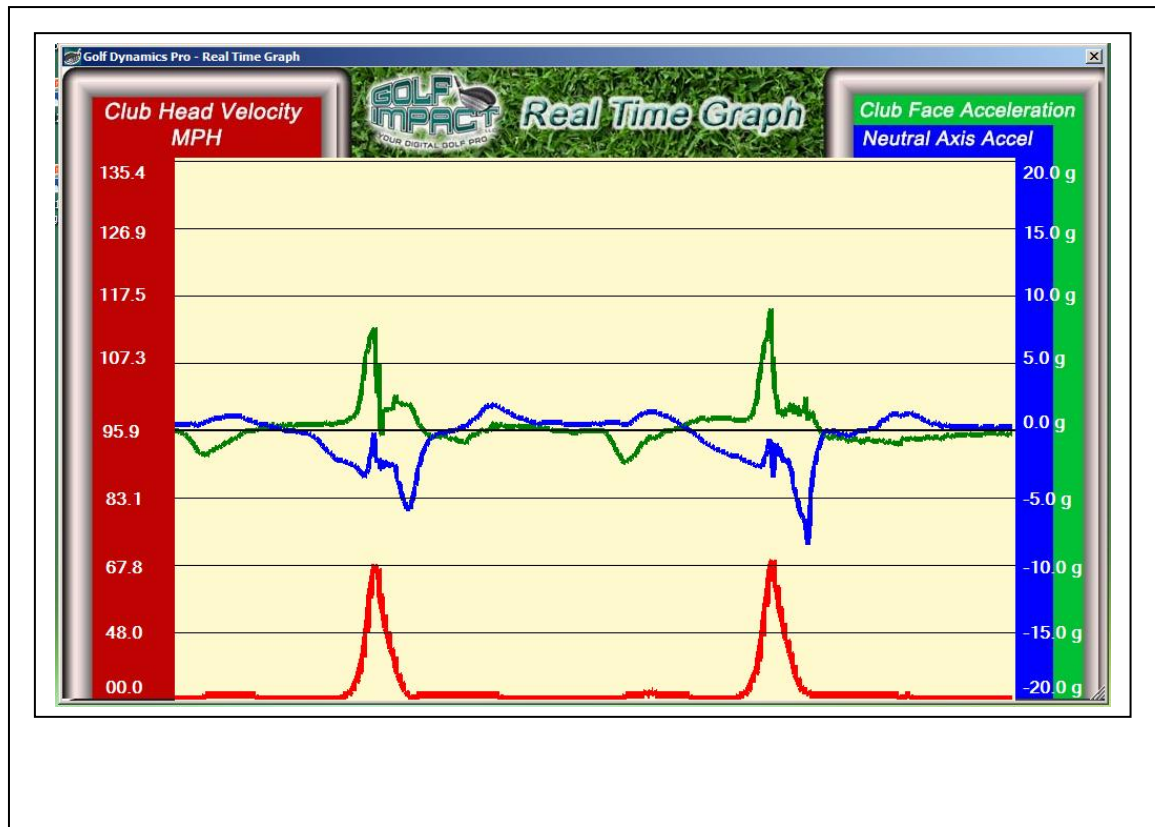
Sport Gauge – User Application

The Sport Gauge application is a great way to see your swing velocity and the associated acceleration forces in gs (unit of gravity) at the specific point in time when maximum velocity is reached or a ball impact takes place. The maximum velocity and the club face acceleration and the neutral axis acceleration are captured and stored in the digital gauges on the left. To reset the digital gauges simply click the “Reset Maximum Velocity” button.



Real Time Graph - User Application

The real time graph allows you to see the changes in velocity and the acceleration forces in real time as you swing the club. This can help you to understand the relationship of what changes you make in your swing and how it affects the physics that are taking place at the golf club head.

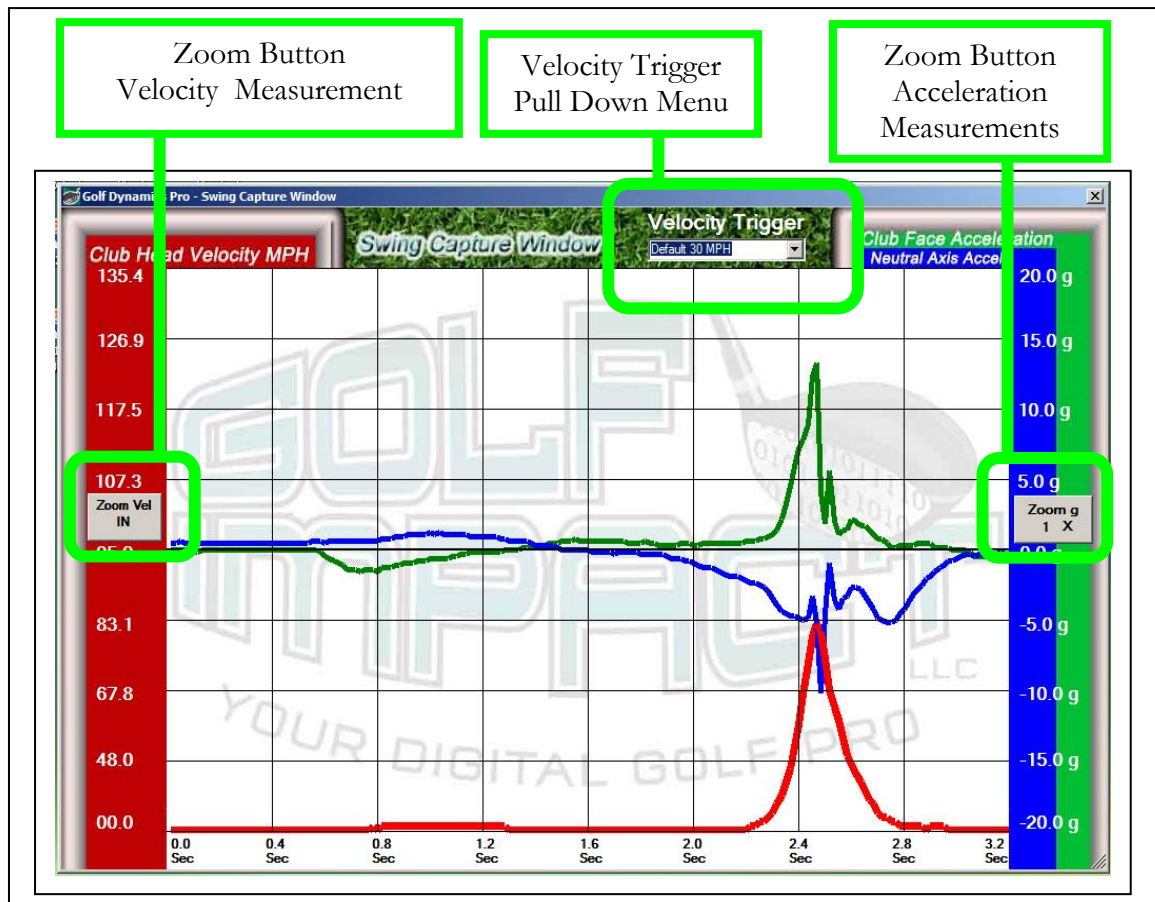


Swing Capture - User Application

The Swing Capture Window as the name implies captures all the data of your swing and displays it in a still form for examination. The display stay on the screen until another swing is detected. One a new swing is detected, the previous swing information is erased and the new swing data is displayed. What determines the detection of a new swing is called the “Swing Trigger”. The swing trigger is a threshold that is detected which results in the capture and storage of data before and after that point in time for display on the screen. The “Swing Trigger” value can be set by you the golfer using the pull down menu near the top of the Swing capture Window.

The swing capture also has separate zoom controls for the velocity measurement (the scale on the left side of the window) and for the acceleration axis measurements on the scales on the right hand side of the screen. When using either of the two zoom buttons, the new zoom conditions that are set go into effect on the next swing. The zoom buttons do not zoom what is currently on the screen. By pushing a zoom button it is always zooming inward until maximum zoom is reached and then goes back to no zoom.

These zoom buttons are a convenient way to look at more detailed data such the smoothness of the backswing or if there are oscillation in the in the shaft from the club head coming to rest before the down stroke begins.



Swing Consistency – User Application

The Swing Consistency Analysis window is the most comprehensive way to compare consistency of your entire swing by comparing the 3 dimensional time varying data from one swing to multiple other swings.

