

HMT Training Sheet



✓	ADVICE AND TIPS
	<p>Check components</p> <ul style="list-style-type: none"> The HMT comes complete with a mounting system to connect it to the GC2, a cable to connect it to the GC2, a pack of reflective club-markers, and a <i>Quick Start Guide</i>.
	<p>Read the <i>Quick Start Guide</i></p> <ul style="list-style-type: none"> Read the guide and ensure that the box contains all the components listed including the mounting system.
	<p>Fix the mount to the GC2</p> <ul style="list-style-type: none"> Fix according to the instructions in the <i>Quick Start Guide</i>. Practice swapping over the mount for a left handed player (if required).
	<p>Identify the HMT cable connection ports on the HMT and GC2</p> <ul style="list-style-type: none"> Inspect the ports and examine the cable and the 8 pins in the cable plugs. You will see that the cable can only plug into the GC2 and HMT at a specific orientation. The pins can break if they are not connected properly, so take great care when connecting and never force the cable. When in operation be careful not to tread on the cables as this can damage the cables, the HMT and the GC2.
	<p>Fit the HMT to the mount</p> <ul style="list-style-type: none"> Fit to the mount and carefully plug in the cable at both ends. Be careful when moving the unit; always unplug the HMT and remove it from the mount before carrying the GC2 and HMT. As the HMT fixing is magnetic it can fall off if carried as one unit, and this could damage the unit, and/or the HMT and GC2.
	<p>Apply the club markers</p> <ul style="list-style-type: none"> Apply according to the instructions in the <i>Quick Start Guide</i>. These are made of a very special reflective material and it is important to only use the latest markers available (email support@foresightsports.eu for more information if required). Each club must have 4 markers applied in the positions shown, otherwise HMT will not display data. It is critical to get the middle heel and toe markers level with each other as these markers are used to measure the dynamic lie of the club. The centre point of these two markers is used to determine the centre of the club face and will be the centre point referenced in the data. If you know where the COG of the club is, and want this to be the central reference point for HMT data, you can put these two markers symmetrically either side of this point. The top and bottom toe markers are reference points only and the exact positioning is less critical (although do not put the bottom marker right on the bottom of the club as it may not be seen by HMT if the turf is hit before the ball, and it will also wear more quickly).
	<p>Marker Care</p> <ul style="list-style-type: none"> After applying markers clean them with an alcoholic wipe to remove any residue that dust might adhere to. It is important to keep the markers clean and in good condition in order to ensure HMT can pick them up. If HMT stops displaying data it is often that the bottom marker is dirty or dusty and cannot be read by HMT - even if it looks clean. If you are cleaning one marker then it makes good sense to always clean the others also.
	<p>Hitting Surface</p> <ul style="list-style-type: none"> Because HMT uses optical technology (and as it is best that club-markers are clean as per the last section) it is important that the hitting surface and clubs are kept as free from dust and dirt as possible. Dirty mats can cause missed shots and can obscure the lenses.

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	<ul style="list-style-type: none"> Low quality mats, often made of polypropylene, can also leave a residue on the clubs and markers, which over time is likely to prevent HMT being able to see the markers clearly. If that is the case it is extra important to keep the markers clean. It may be worth considering upgrading to a higher quality nylon hitting mat.
	<p>Positioning the GC2 & HMT</p> <ul style="list-style-type: none"> Always ensure the kick-stand is fully employed; position the GC2 & HMT in the correct location by placing a ball in the hitting zone; line the GC2 & HMT parallel to the target line (using an aiming pole and the alignment hooks on the GC2 shield if necessary); ensure the GC2 & HMT are not lower than the hitting zone (it can be 1 or 2 inches higher). If you have a fixed tee position: set up the unit so that when the ball is on a high tee the ball is in the top right corner of the hitting zone box. This will ensure that the tee will not interfere with iron shots hit from the turf.
	<p>Battery life</p> <ul style="list-style-type: none"> The HMT is powered via the GC2 and when both units are running on battery you should expect to get 3 to 5 hours run-time if your battery is in good order and depending on usage (shots hit, backlight, audio etc). If you are going to use the HMT and GC2 on battery regularly we recommend the purchase of an external lithium battery pack which will at least double the run-time.
	<p>Damage protection</p> <ul style="list-style-type: none"> The front of the HMT is made from thick rubber to help deaden the impact of ball strikes. The magnetic fixing on the mount is also designed to allow the HMT to rock, or fall backwards, to further absorb impact.
	<p>Be careful when moving the unit</p> <ul style="list-style-type: none"> Always unplug the HMT and remove it from the mount before carrying the GC2 and HMT. As the HMT fixing is magnetic it can fall off if carried as one unit, and this could damage the HMT, the cable and the GC2.
	<p>How does HMT work?</p> <ul style="list-style-type: none"> Ultra-high-speed stereoscopic cameras image and directly measure the club 8 to 10 inches before impact, taking nearly 100 images. The HMT measures the exact 3D position in space of each club-face marker and creates a 3D digital model of the club to deliver industry leading accuracy for all key data points. HMT also features an accelerometer that accounts for any sloping lie up to 15 degrees. It takes 7 seconds to readjust if you move the unit. All data is then provided relative to a horizontal plane.
	<p>Turn on the HMT</p> <ul style="list-style-type: none"> As the HMT is powered via the GC2 the HMT will turn on automatically when the GC2 is powered. If the HMT is properly connected (and if the GC2 firmware version is up to date) the GC2 LCD screen will display <i>HMT Connect</i> shortly after the GC2 has booted up.
	<p>Turn off the HMT</p> <ul style="list-style-type: none"> The HMT will power-off automatically when the GC2 is turned off.
	<p>Position the ball</p> <ul style="list-style-type: none"> Position the ball in exactly the same way that you do for the GC2. You can see the ball on the LCD screen; move it into the right-hand box for a right hander, and into the left-hand box for a left hander. Always ensure it can only see one ball; multiple balls will prevent the unit from tracking.
	<p>Ball quality</p> <ul style="list-style-type: none"> Ball condition should be good. Dirty or worn balls could cause missed shots (and damage screens).

Club Data

- Club data will appear on the LCD screen of the GC2 (if the GC2 is not connected to software via the USB cable. If it is connected to a pc then the Foresight logo will be displayed on the LCD screen). The GC2 will show ball data first and then swap to club data. In the *System Menu* you can select *HMT Options* and select a continual swap between GC2 and HMT data, or you can choose for the HMT data to stay once it is displayed.
- The LCD screen displays the data listed below. Where two data points are shown this signifies a choice as to which data can be shown on the LCD screen. Go to *HMT Options* in the menu and choose which data to display by toggling using the *OK* button.
 - **Impact Location**
 - **Efficiency (Smash Factor)**
 - **Club Speed/Speed At Impact**
 - **Attack Angle**
 - **Swing Path**
 - **Face to Path**
 - **Lie/Closing Rate**
 - **Dynamic Loft/ F-Axis**

Notes:

- All data points are taken at the point immediately before impact with the ball.
- HMT measures all clubs from sand wedge to driver (not putter), with the limit of measurement being extremely closed club-faces or extremely out-to-in club paths (especially with lofted clubs).
- **Impact Location** is the point, measured in mm, at a vertical and horizontal tangent from impact.
- **Club Speed** is the speed of the club between the horizontal markers, and **Speed At Impact** is the speed of the club face at the point of impact with the ball.
- **Efficiency** (Smash Factor) is the ratio between ball and club speed. This is calculated using *Speed At Impact*. If the ball and club are within legal limits you should not see an efficiency reading above 1.5, and in practice it is unusual to see measurements above 1.47.
- **Angle of Attack** is the descending or ascending path of the club-head measured in degrees.
- **Club Path** is the path of the club relative to the target line as viewed from above. It is the path immediately prior to impact, so be careful when looking at the graphic in FR1 – the line shown for the path is an extended tangent and not necessarily the extended club path.
- **Face to path** is the face angle relative to the path of the club.
- **Face to target** is the face angle relative to the target line (line parallel to the GC2/HMT).
- Note: the club face angle can change by 4 or 5 degrees while the ball is in contact with the clubface, so pre-impact data as shown by HMT is crucial; post impact data is messy and would not be of use to the player relying on the data to try and make adjustments.
- **Lie** is the dynamic measurement of the lie of the club. No other technology can measure this.
- **Loft** is the dynamic measurement of the angle of the face plane of the club face (the face plane is assumed as a flat plane created by from the position of the markers).
- **Closure Rate** (not shown in FR1) is the rotation of the club head heel-to-toe measured about the shaft in degrees per second or rpm (there are options in the Performance App and in FSX to change this). No other technology can measure this.
- **F-Axis** is the fractional path of the ball up the club face (the path of least resistance). It is normally the angle perpendicular to the ball access tilt.

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	<p>HMT System Options</p> <ul style="list-style-type: none"> • Access the <i>System Options</i> menu by pressing the left arrow key once and scrolling down to <i>HMT Options</i>. There are several choices as to which data points to display on the LCD screen of the GC2 (if additional software is not being used). Simply scroll down to the data point of choice and press the <i>OK</i> button to toggle between the options.
	<p>Water</p> <ul style="list-style-type: none"> • The HMT is not designed to be used in wet weather. If it starts to rain either cover the unit or stop using it and pack it away.
	<p>Basic maintenance</p> <ul style="list-style-type: none"> • Lens cleaning – it is important to periodically clean the lenses of the HMT. Cleaning kits are available and include an air blower and cleaning swabs. It is important to use the blower first to remove any large particles and then to clean the lenses carefully with the swabs. • Cable – check the connecting cable regularly to ensure the pins look in good order and are not bent. • Firmware – ensure the firmware version on your GC2 is up to date. • Always store your HMT in a protective box/case that provides shock protection in case of knocks.
	<p>Basic troubleshooting</p> <ul style="list-style-type: none"> • Missed shots – if your HMT misses several shots try the following: • Check that your HMT is properly set up as per the advice in the set-up sections above (footstand engaged, cable undamaged and plugged in, unit no lower than the hitting mat, markers are latest design, are clean and in good condition etc). • Carry out a soft-reset by turning off the GC2 and turning it on again. • Carry out a hard-reset. To do this press the on/off button but keep your finger on it (ignore the on-screen warning) until the unit turns off. Leave the device for 1 minute and then turn it back on again. • Swap bottom marker first, and then potentially all markers. • Check that there is no abnormally bright lighting or sunshine shining into the HMT, or that might be reflecting off nearby objects or off the hosel of the club. Test in different lighting scenarios. • If this doesn't help, or if the unit is not providing data (or not picking up shots), then replace the GC2 flash unit with a new one. • If there is still an issue refer to the online FAQ at www.foresightsports.com/support/faqs or email support@foresightsports.eu.

For further information please visit www.foresightsports.eu, email support@foresightsports.eu or call us on +44 (0) 1483 779222.