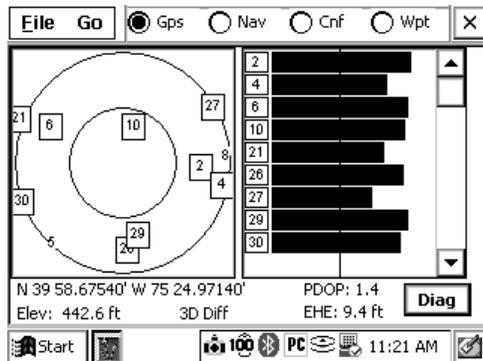


LandMark CE FIA Users Guide

LandMark CE is ready for use after it has been installed from the CD on the Allegro using ActiveSync and the Bluetooth GPS receiver bonded to that Allegro.

To begin using LandMark CE on the Allegro, click the LandMark desktop icon once and press Enter. The screen below will appear.

NOTE: Depending on the Bluetooth driver, you may need to press the blue key, then F10 to open Bluetooth communication.



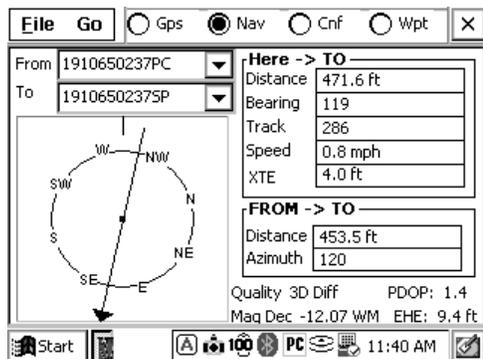
Screen Selection

LandMark CE has four operational screens that are accessed on the top bar. These are the current GPS location screen (Gps), the Navigation Screen (Nav), the Configuration Screen (Cnf), and the Waypoint Screen (Wpt).

Gps Screen

The GPS screen (shown above) displays the current GPS position and other relevant information. In the upper left is a *Skyplot*, which is a graphical representation of the satellite positions directly overhead. The outer circle represents the horizon and the inner circle is 60° above the horizon. The satellites are displayed by their unique satellite number. Satellites used to compute the current GPS position are shown in a square. When an EMTAC/Rightway GPS receiver is used, WAAS satellites are tracked but not displayed in the *Skyplot*. To the right of the *Skyplot* is the *satellite signal strength* graph. The vertical bar represents 50% of maximum power. Below the *Skyplot* are the current coordinates, elevation, GPS Quality (2D, 3D, 2D Diff, 3D Diff, No Fix, No Comm. Act.), the PDOP, and the EHE. The *Diag* box shows individual satellite details and NMEA string data.

Nav Screen



The Nav screen allows users to calculate distances and azimuth between points and navigate to a location. The upper left portion of the screen contains *two drop down lists* of saved waypoints or the current “Here” position.

The *From* and *To* lists are used to select waypoints from which the calculations will be performed. Below the waypoint drop down lists is the *compass*.

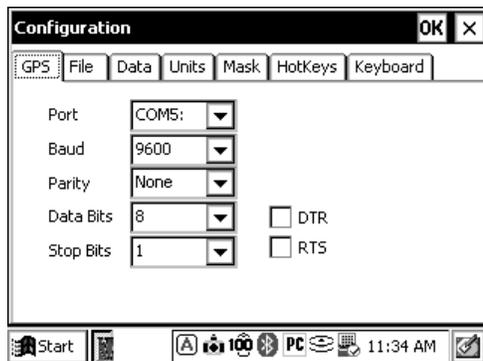
The *compass* rotates to show the direction of travel once you start moving.

The arrow always points toward the *To* location. The *compass* body rotates to show the current direction of travel.

The *Here* → *To* section shows calculated values based on the current GPS location and the destination (*To*) location.

The *From* → *To* section displays the calculations based on the *From* location to the *To* location. Use this section when calculating course-to-plot distance and azimuth between a saved SP waypoint and a saved PC waypoint. Displayed at the bottom of the *Nav* screen are the GPS Quality, heading setting, PDOP and EHE values.

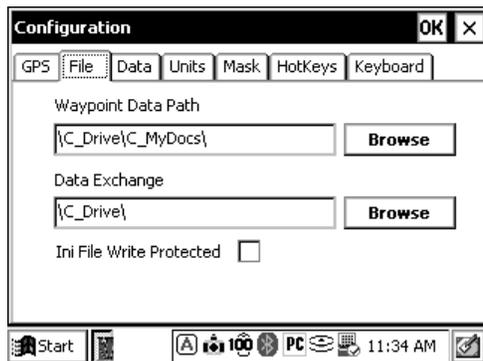
Cnf Screens



The Cnf screen allows customization of critical LandMark CE settings.

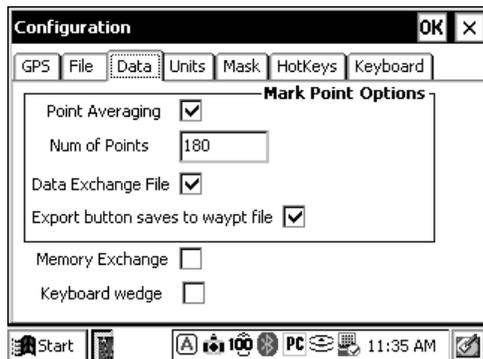
The first screen to appear is the *GPS* screen. The only option that needs changed here is the Com Port. It must match the Bluetooth Com Port setting when the GPS receiver was bonded to the Allegro. It may vary from unit to unit. **When the Com Port is changed, LandMark CE must be shut down and restarted.**

The other defaults that never need changed are: Baud=9600, Parity=None, Data Bits=8, Stop Bits=1. DTR and RTS do not need selected when using an EMTAC GPS receiver.



The *File* tab displays where waypoints and data are stored on the Allegro.

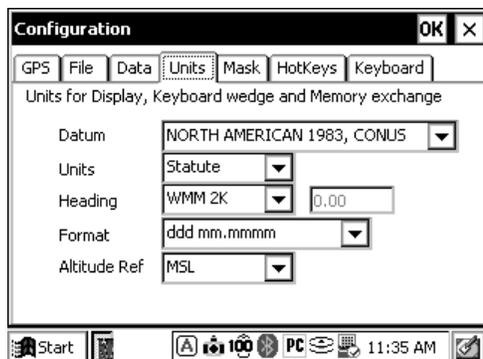
When the *Ini File Write Protected* box is checked, the critical GPS settings have been locked and cannot be changed by the user. This is a security measure to insure the GPS data is collected with the highest accuracy and confidence.



The *Data* tab defines how the waypoints are collected and how they are stored.

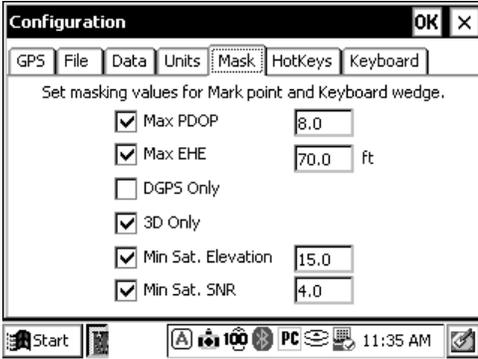
FIA will record data that is the average of 180 individual fixes.

The *Data Exchange File*, *Export*, *Memory Exchange* and *Keyboard wedge* functions will be implemented at a future date.



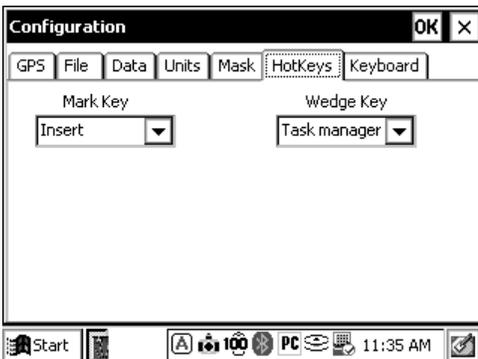
The *Units* tab is used to format the GPS data.

The critical settings that FIA uses for Datum, Units, Heading, Format, and Altitude Ref. are displayed on the graphic to the left.



The *Masks* tab is used to set GPS signal masking parameters when marking waypoints. Only the GPS signals that meet the specified criteria will be used in the waypoint averaging solution.

The critical settings that FIA uses for *Max PDOP*, *Max EHE*, *DGPS*, *3D Only*, *Min. Sat. Elevation*, and *Min. Sat. SNR* are displayed on the graphic to the left.

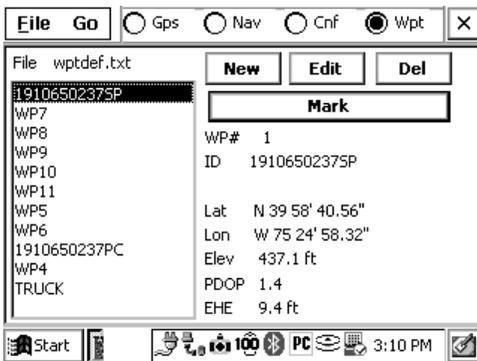


The *HotKeys* tab is used to assign an automatic function to a specific button on the Allegro.

Currently, FIA only uses the Insert key on the Allegro to jump to the Mark Waypoint screen. **The Insert Key (Ins) Allegro on the can be pressed at anytime LandMark CE is running and it will jump to the collect waypoint screen.**

The *Keyboard* tab is not used.

Wpt Screens



The *Wpt* screen is used to display, edit, manage and collect GPS waypoints.

On the left side of the screen are the saved waypoints. A default filename can be used (as shown) or a unique name such as plot number, SP, PC, etc. To select a waypoint, click on it.

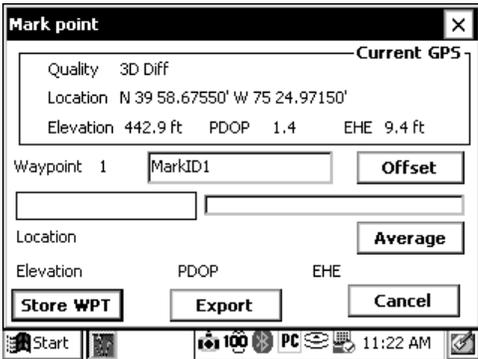
The *New* button opens a screen where coordinates can be entered.

The *Edit* button opens a saved waypoint. Here you can change a waypoint name or apply a coordinate *Offset*.

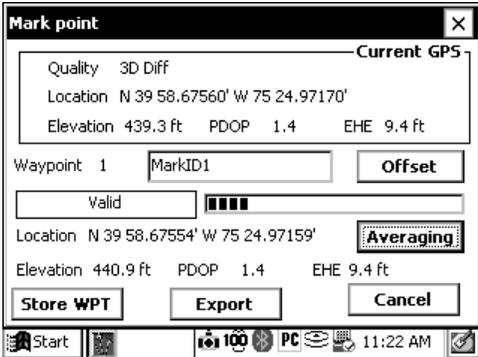
The *Del* button is used to delete a previously select waypoint from the list. Waypoints can only be deleted one at a time.

The *Mark* button is used to open the *Mark Waypoint* screen to start the averaging waypoint function.

Below the *Mark* button are the GPS details of the selected waypoint.



To average waypoints, press the Insert key (Ins) on the Allegro keypad or click the Mark button in the *Wpt* screen.



The top box displays the current, single fix GPS data.

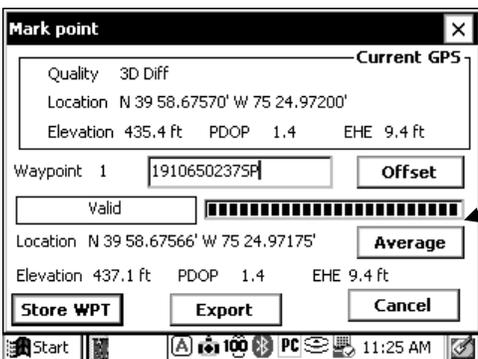
Below the Current GPS is the default waypoint name (editable) and a button to apply an Offset (distance, direction, slope) to the averaged coordinates.

Next is a box that displays whether or not the current GPS fix will be valid, based on the GPS masks set up in the *Cnf* screen.

A *Progress Bar* appears when averaging to show the solution progress based on the number of fixes indicated in the *Cnf/Data* screen. Below the status bar is the running average section displaying the coordinates, elevation, PDOP and EHE.

To begin averaging, click the *Average* button. It will change and display the word "Averaging". The status bar will progress as valid fixes are used in the solution. When complete, the word "Averaging" will change back to "Average". During averaging, hold the GPS receiver stationary over the point until the process is complete.

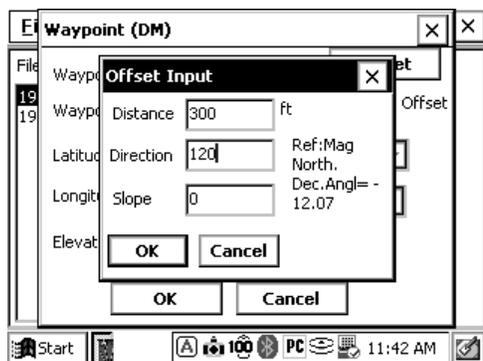
The information to be recorded on the tally sheet is located in the running average section of the screen or you can click *Store WPT* and view the data in the *Wpt* screen.



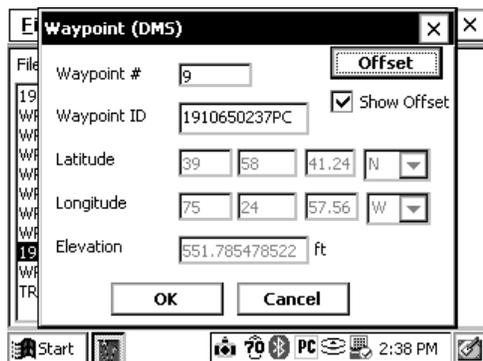
This screen shows that the Averaging process is complete.

The *Progress Bar* is completely fill in and the Average box has changed from "Averaging" back to "Average".

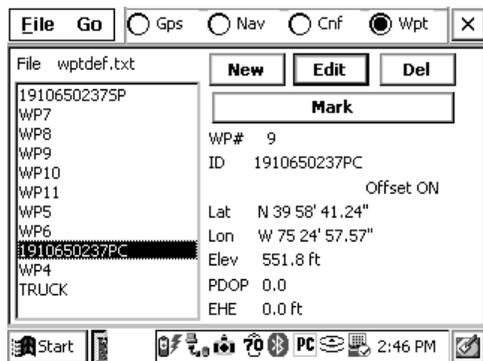
Computing An Offset



To compute the coordinates of an offset location (i.e. PC cannot be occupied), save your current location as a “180 fix” averaged waypoint. In the Wpt Screen, highlight the previously saved waypoint. Press Edit and then the Offset button. When the Offset Input screen appears, enter the distance, compass direction and slope to the unknown point. Press *OK* and the Waypoint screen will appear with the calculated offset position shown in a lighter font.



You can toggle between the original and offset coordinates by tapping the Show Offset box. To completely remove the offset calculation, press the Offset button and type “0” for distance, direction and slope.



If the offset is not removed, the offset calculation will continued to be displayed on the Wpt screen.

The MIDAS program is capable of reading in stored GPS data by pressing **Ctrl + K** on the Allegro keypad. After averaging the GPS fixes in LandMark CE by pressing the Export tab, open the MIDAS program and go the GPS page in your plot. Press **Ctrl + K** on the Allegro keypad and the GPS info will be read into the Tally program automatically. To insure the correct GPS data is being associated with the correct field plot, the LandMark GPS averaged data info is time-stamped. If you wait longer than 15 minutes to use the **Ctrl + K** function, you will get an error message and will need to take GPS fixes again.

LandMark CE / EMTAC/RIGHTWAY GPS FAQs

- Q. My Allegro will not connect with the Laptop when using the cradle and USB to load LandMark CE?*
- A. The COM Port on the Allegro may be set to COM 1 for data transfer. LandMark CE can only be loaded through ActiveSync using the USB Port and cradle. See the first page of the instructions in *the LandMark CE Installation Guide*.
- Q. I just installed LandMark CE on the Allegro, but the EMTAC/Rightway isn't communicating with the Allegro?*
- A. The GPS receiver must be turned on before LandMark CE is started. After LandMark CE is installed on the Allegro, the COM Port in LandMark CE must be changed to match the Com Port setting indicated during the Bluetooth GPS bonding process. Make sure both the blue and green lights are flashing.
- Q. My EMTAC/Rightway was communicating fine with LandMark CE and then it just stopped and displayed "No Comm. Act."?*
- A. There has been some type of interruption in the Bluetooth signal between the EMTAC/Rightway and Allegro. On the Allegro, press the blue button and the F10 key to reconnect. Make sure both EMTAC/Rightway blue and green lights are flashing.
- Q. The blue or green lights on my EMTAC/Rightway quit working?*
- A. Switch the EMTAC/Rightway unit on and off until both lights are on.
- Q. LandMark CE doesn't always display that I am getting a "3D Diff" fix?*
- A. The EMTAC/Rightway GPS receiver is capable of picking up two geostationary FAA satellites (WAAS) that broadcast real-time, differential GPS corrections. The two WAAS satellites are positioned near the equator over the Atlantic and Pacific Oceans. Based on your Latitude and view of the sky, the EMTAC/Rightway may be able to "see" these satellites. GPS fixes that are differentially corrected are more accurate than a "3D Only" fix. The WAAS satellites are not displayed on the Skyplot when using the EMTAC/Rightway.
- Q. I can't change the critical settings in the Cnf screens?*
- A. The critical settings are locked to prevent the field user from changing them.
- Q. I pressed the Insert key (Ins) on the Allegro, but LandMark CE won't start Averaging?*
- A. The Ins key switches to the *Mark Screen*, but you must click the box that shows "Average" to begin Averaging.
- Q. How do I calculate the coordinates of PC when using an offset from another location?*
- A. After averaging 180 fixes at the offset location on the *Mark Screen*, click Store WPT. Go to the *Wpt Screen* and select the waypoint from the list that will get the Offset. Click the Edit button. Click the Offset button and enter the distance, direction and slope (+ or -) to PC. Click OK. The *Show Offset* box is checked and the Offset information is displayed in grayed-out font. When done recording the Offset, click the *Offset* button and set the distance, direction and slope back to "0". Click OK. If you do not reset the Offset back to "0", the Offset will still be applied for that waypoint in the *Wpt screen*. The words "Offset ON" will be displayed when viewing the waypoint details.
- Q. How do I minimize LandMark CE when it is open?*
- A. Tap the LandMark CE icon on the bottom taskbar. You may need to make the taskbar visible first.