Instructions

for use

This manual makes reference to the version 0.4.0, the options added on next versions are not yet referenced in this manual.

A new manual will be available soon

The user-interface graphic turns to be very simple and intuitive, it immediately allows, when program is launched, to reach directly all its functionalities. To the starting, the program displays the window presented in Illustration 1.

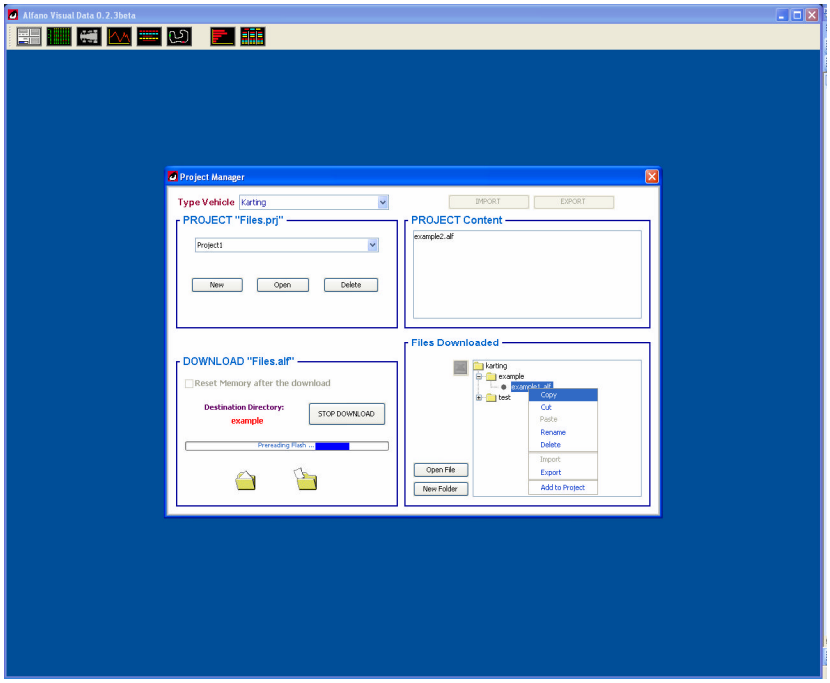


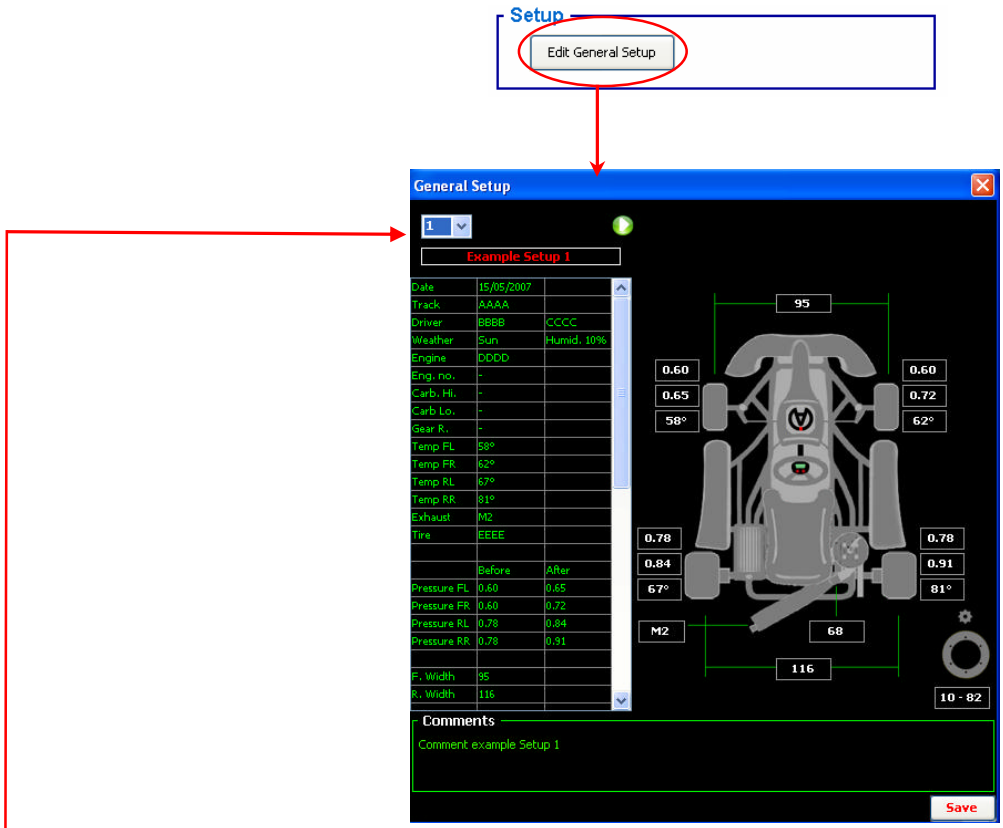
Illustration 1. Window that appears to the starting of the program

The *toolbar* allows the visualization and the "devizualisation" of all internal sections of the program.

Illustration 1a. Toolbar

Operations that one can do :

Création\Modification of the "General Setup":



With this operation, you can compile until 10 different grids of Setup (Regulating of the Vehicle). To choose on which Setup to work, just click on the scrolling menu present on the section in top on the left and select the number of the grid (from 1 to 10).

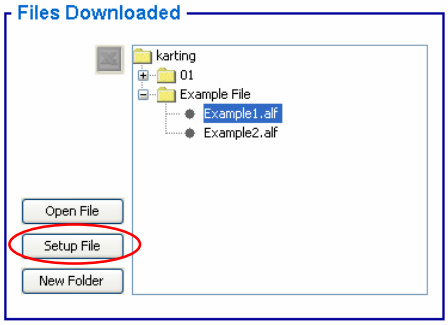
Immediately after the compilation or the modification of a grid, it will be possible to save the content of it via the tab "Save".

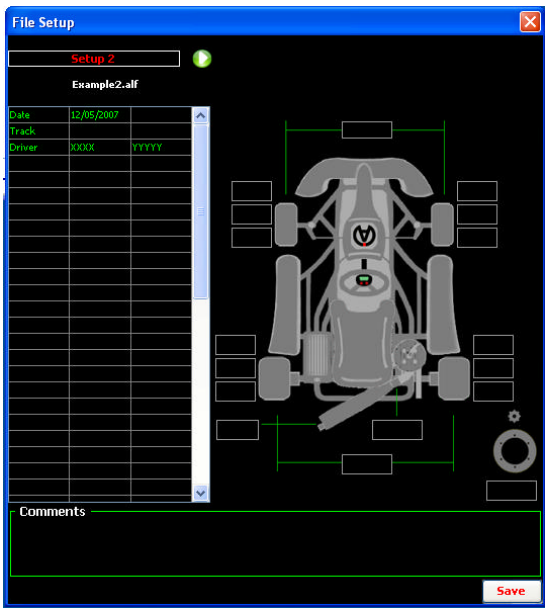
The goal of this section is to give to the user the possibility to create grids of regulating of his vehicle before even that this one goes to the track and therefore before the creation of the files containing the downloaded data.

The user, before downloading the data of his chronometer, should enter in this section to select the General Setup that he wants to insert in the .alf file created just after the download.

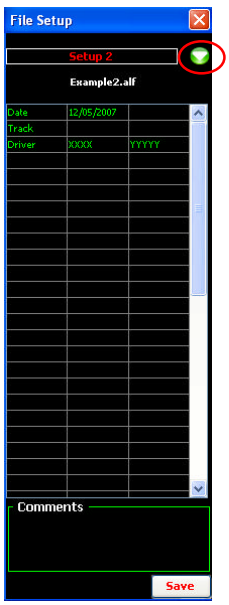
By default, it will be the "General Setup 1" that will be inserted in the downloaded files.

NB : It will be successively possible to modify the grid of Setup of each .alf file of the section "File Downloaded" while selecting a file and while clicking successively on the tab "Setup File".





Grid of Setup of the file Example2.alf



Reduced grid

Transfer of Data :

To use this option, selecting a directory of destination is sufficient (select one that is already present in the created directory or create a new one via the tab “New Folder” and select it immediately after) on the part below on the right of the section (File Downloaded) and successively click with your mouse on the button “START DOWNLOAD”, immediately after the *label* present on the button will become “STOP DOWNLOAD”, this one will serve to stop the operation in progress. At the end of the process of download, a file – containing all the data downloaded (Astro, Pro+, Astro Formula, Vision) by the system – will be saved. This file will have a .alf extension and will be in the directory of destination represented in the structure on the part of the section Files Downloaded, as you can see it on illustration 2. On the file downloaded, you can do different operations. These operations are accessible through a windows menu (*popup*) visible by a click on the mouse when you are on the wanted file.

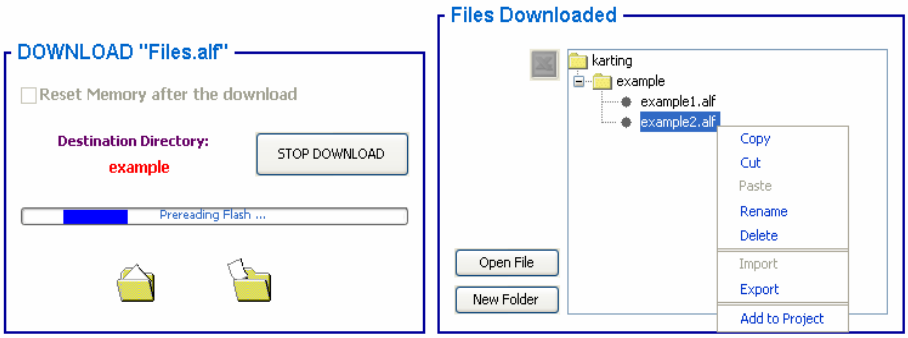


Illustration 2. Dialog Managerial Section concerning the transfer of the data from the device toward the PC and to the organization of the files created.

To regroup files downloaded at different moments, it is possible to create some PROJECTS, the illustration 3 represents the part of the Section Manager that takes care of the management of the Projects.

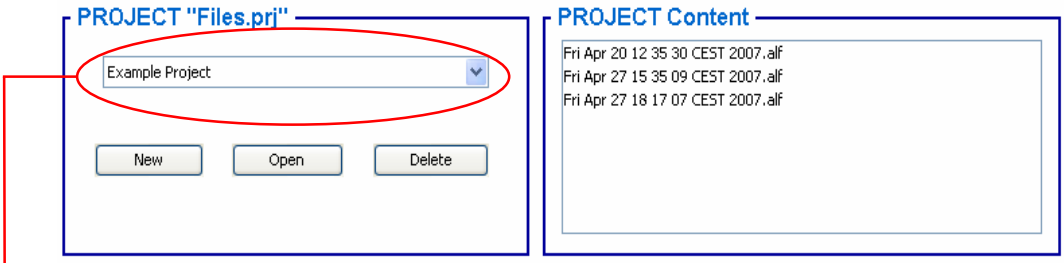
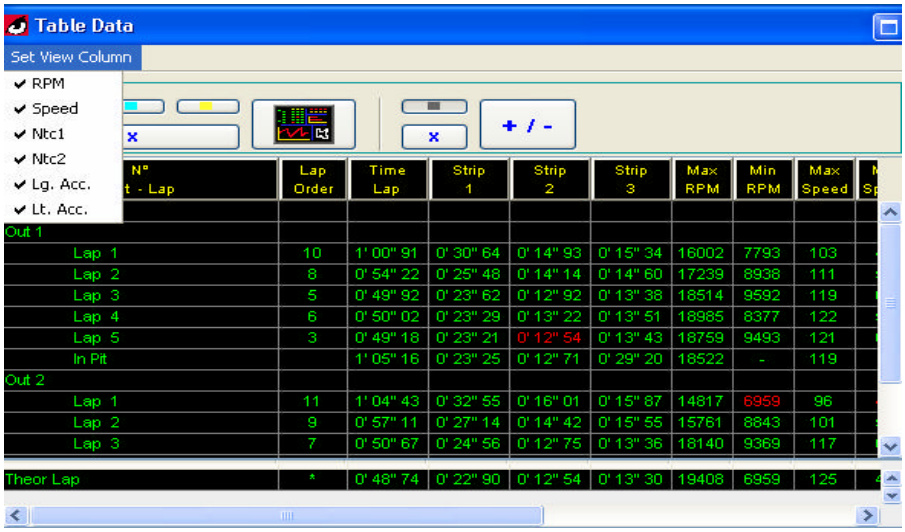


Illustration 3. Dialog Managerial Section concerning the management of the projects.

On the left side of the section, one can create a new project, to open one or to erase some others. Through the scrolling menu, one can choose the project on which to work, immediately after having chosen the project on the right part of the section, will appear the list of the files (.alf) that are contained there. To add to the running project a .alf file, just select it in “File Downloaded” and make it slip in the space “PROJECT Content” (Drag and Drop). In alternative, just select the file in "File Downloaded", make a right click on this one and successively click on "Add to Project" present on the scrolling menu.

From the moment a project is open, a picture containing all information for each of the files present there shows off.

In this picture, it is possible to do different operations. The illustration 4 represents the picture immediately displayed after having opened a Project.



N° t - Lap	Lap Order	Time Lap	Strip 1	Strip 2	Strip 3	Max RPM	Min RPM	Max Speed
Out 1								
Lap 1	10	1' 00" 91	0' 30" 64	0' 14" 93	0' 15" 34	16002	7793	103
Lap 2	8	0' 54" 22	0' 25" 48	0' 14" 14	0' 14" 60	17239	8938	111
Lap 3	5	0' 49" 92	0' 23" 62	0' 12" 92	0' 13" 38	18514	9592	119
Lap 4	6	0' 50" 02	0' 23" 29	0' 13" 22	0' 13" 51	18985	8377	122
Lap 5	3	0' 49" 18	0' 23" 21	0' 12" 54	0' 13" 43	18759	9493	121
In Pit		1' 05" 16	0' 23" 25	0' 12" 71	0' 29" 20	18522	-	119
Out 2								
Lap 1	11	1' 04" 43	0' 32" 55	0' 16" 01	0' 15" 87	14817	6959	96
Lap 2	9	0' 57" 11	0' 27" 14	0' 14" 42	0' 15" 55	15761	8843	101
Lap 3	7	0' 50" 67	0' 24" 56	0' 12" 75	0' 13" 36	18140	9369	117
Theor Lap	*	0' 48" 74	0' 22" 90	0' 12" 54	0' 13" 30	19408	6959	125

Illustration 4. Picture containing the data of a Project

In this picture, it is possible to select, via the grey button that is in top, the lines that interest the less the user, therefore the least important laps, successively while using the button "+/-" it is possible to eliminate or to visualize the previous selected lines. It is also possible to visualize the columns of the picture through the menu "Set View Column". In this menu, the columns MAX and MIN relative to each of your choices in the Set View Column are displayed in the picture, by de-selecting a choice (the small V disappears) the columns MAX and MIN in the picture that correspond there disappear also. In this section, the colorful buttons that are on the top left serve to the selection of the lines corresponding to the laps that one wishes to analyze. Immediately after having made the choice of the laps to analyze while clicking on this button  (Analyse) you will be able to do a retailed analysis of the selected laps.

NB : To do the analysis of the laps, it is necessary to select a lap of reference, the line of this reference lap will appear in red to differentiate it from the other(s).

The illustration 5 shows on only one screen the useful section organization to the analysis of the data :

Illustration 5. Detailed analysis of 3 selected laps

The analysis is displayed through 5 internal sections to the application, these 5 sections are :

- Graphics
- Data Acquisition
- Histogram
- Trajector
- Table Partial

Graphics is the instrument that serves to visualize all data of the laps through the use of the functions 2d created accordingly to the time or to the distance.

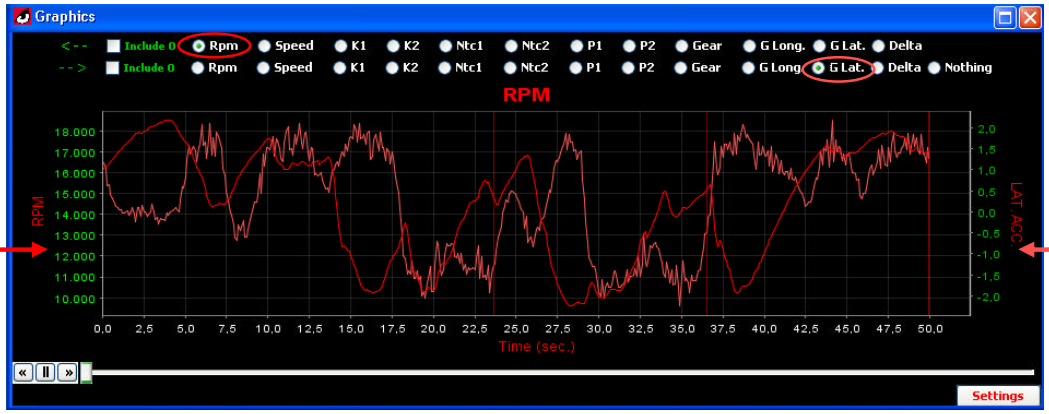


*Illustration 6. Graphics Section used for the representation of the **RPM** data (represented on the left axis) and the*

***Lateral G Force** data (represented on the right axis)*

As one can deduct it of the illustration 6 in the diagram, it is possible to superimpose two types of different nature data that make reference respectively to the 2 distinct ordinates, one on the left side (RPM) and the other on the right side (LAT ACC.) of the section. The more pronounced color curve is the reference of the left axis while the more lucid color curve is the reference of the right axis. The first 2 lines in top of the section serve to make the choice of the data that you wish to visualize. The first line making reference to the left axis and the second line to the right one. The rod of progress serves to the displacement of a vertical line on the whole length of the diagram, it is usefull to identify a precise reference on the lap. In the Data Acquisition window, one recovers displayed the relative samples' range to a marked reference of the line. The possibility of making a zoom exists merely inside the diagram by a right click on the mouse while putting in evidence a part of the curve. The buttons "Include 0" are very usefull to avoid the superposition of the data that relates to the different typologies. The buttons of simulation that are on the right in the low of the section serve

to create an automatic movement of the scroll bar. This automatic movement can, at all times, be stopped or reset.

Buttons for the automatic displacement of the scroll bar.

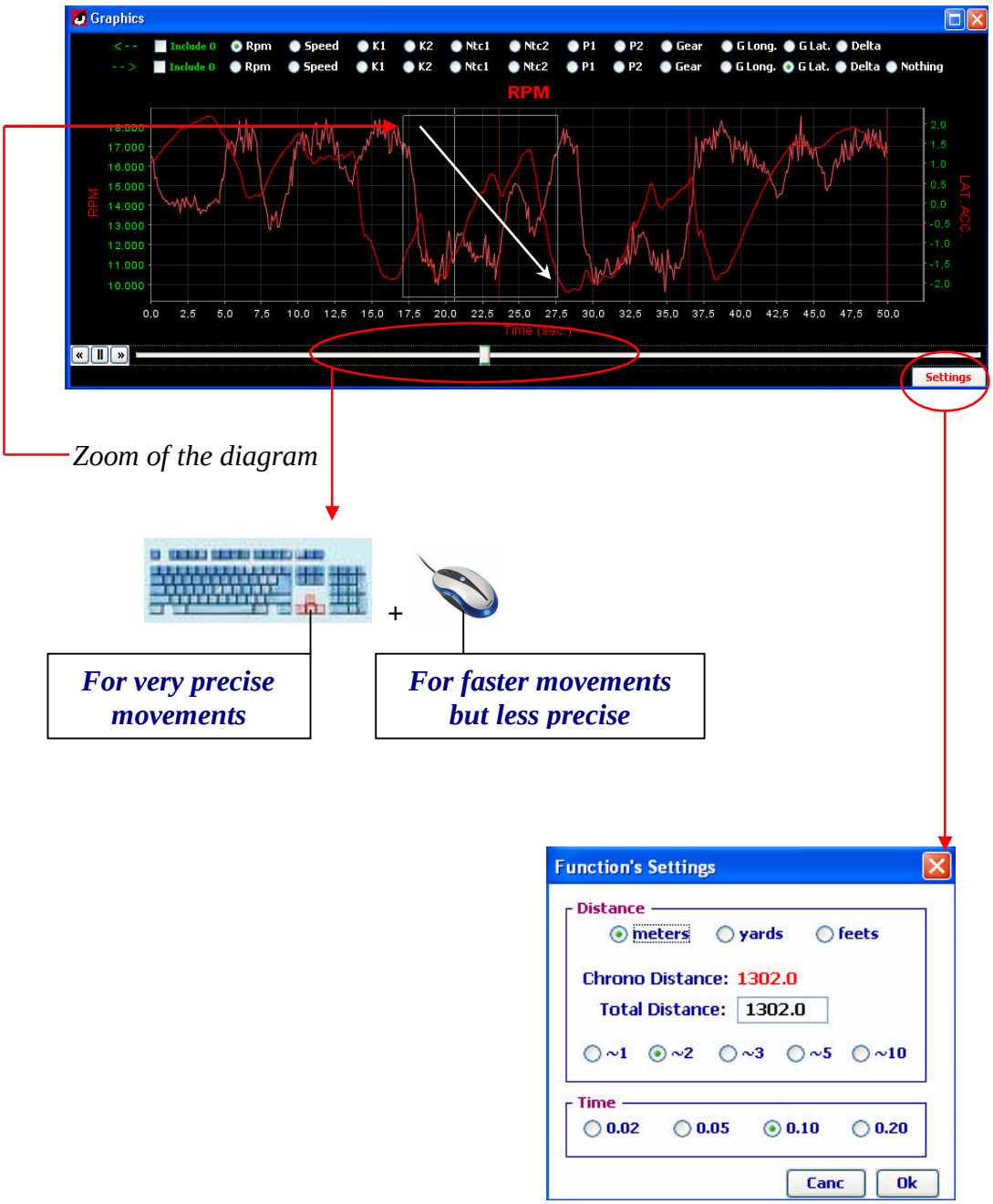


Illustration 8.

Settings of the Section Graphics

The window of dialogue Function's Settings (Illustration 8) is divided in 2 parts :

- Distance
- Time

The 1st concerns the configuration of the functions when they make reference to the DISTANCE, the 2nd concerns the configuration of the foncitons when they make reference to the TIME.

The part of the window Setting relative to the DISTANCE is useful for :

1. choose the unit of reference measure for the diagrams (Meters, Yard or Feet) ;
2. visualize the "Chrono Distance" data, this one gives the distance calculated from the information memorized of the chronometer. Nevertheless, this data is to consider with prudence because it can be altered (and therefore lose its precision) when the vehicle suffers of outside actions that alters it. For example : the blockage of the wheels some instants or a movement of slip on the circuit, etc...
3. modify the "Total Distance" data, what will allow the user to insert a real distance of the trajectory if he knows it, at that moment the diagrams will adapt to the real distance inserted by the user and won't make anymore references to the data "Chrono Distance" ;
4. visualize a set of useful buttons to define the precision of the movement of the scroll bar. If, for example, you select ~2 (circa 2) and that the chosen measure unit is the meter, every action on the scroll bar will correspond to a displacement of +/- 2 meters.

The part of the Setting window relative to the Time is useful for :

1. visualize a set of useful buttons to define the precision of the movement of the scroll bar. If, for example, you select 0.10, every action on the scroll bar will correspond to a fraction of time of a tenth of second.

The Data Acquisition Section serves to visualize, to every movement of the scroll bar, the values of the samples' range, and the Delta (differences of time or distances) between selected laps.

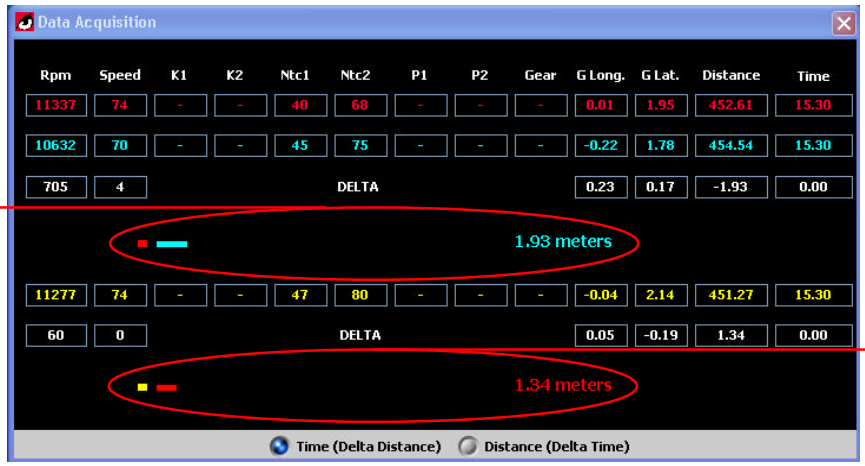


Illustration 9. Data Acquisition window serving to visualize the information and all movements of the scroll bar.

Delta Distance between Reference Lap (Red) and Blue Lap

Delta Distance between Reference Lap (Red) and Yellow Lap

On this diagram, one can note that when the time is of 15,30" the vehicle that browses the red lap is to the rear in relation to the vehicle that browses the blue lap, and this to a distance of 1,93 meters. The vehicle that browses the yellow lap, as for it, is in disadvantage in relation to the lap of reference of 1,34 meters.

The buttons *Time* and *Distance* serve to configure the pole of reference of the data to analyze. While choosing like pole of reference the time, the Delta will refer to the distance. Vice-versa, while choosing the distance like pole of reference, the Delta will refer at the time.

Histogram is the instrument that permits to regroup all data of selected laps by *range* (intervals), you have the possibility to configure the "range" while specifying their dimension. In the illustration 10, the "range" of the RPM has been configurated to 1000 laps/m.

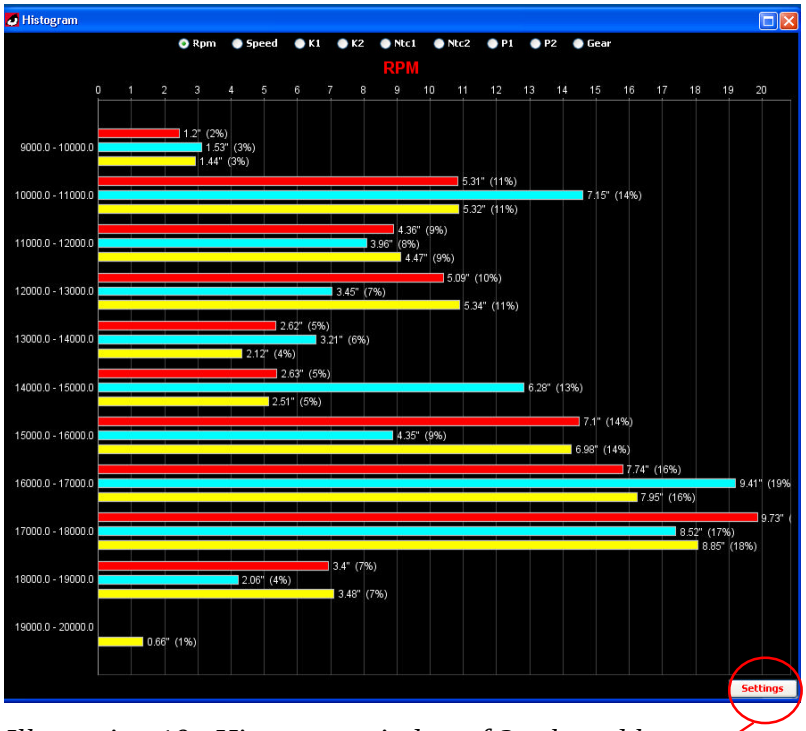


Illustration 10. Histogram window of 3 selected laps.

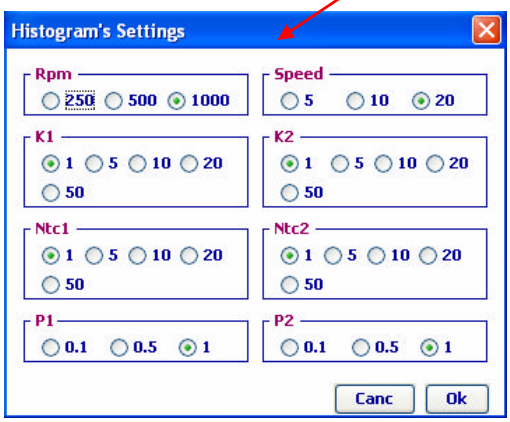


Illustration 11. Setting of the section Histogram serving to configure the "ranges" for each typology of samples.

Trajector is the section in which the trajectory of the lap is rebuilt thanks to the speed data, lateral and longitudinal accelerations. Within the trajectory, it is possible, thanks to the movement of the scroll bar of the Graphics section, to make move precise points inside the trajectory, these representing the vehicles that browse the selected laps, according to their time or their real distance. Thanks to the buttons Open and Close, it is possible to view respectively the real trajectory captured via the chronometer data and the closed trajectory.

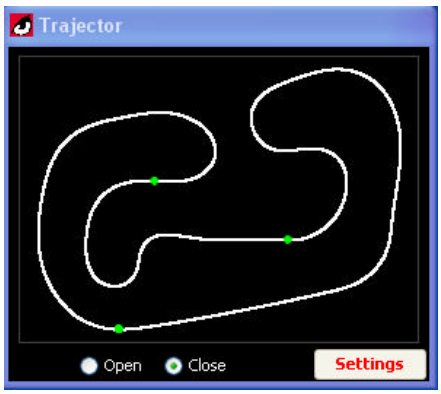


Illustration 12a : Trajector / Close

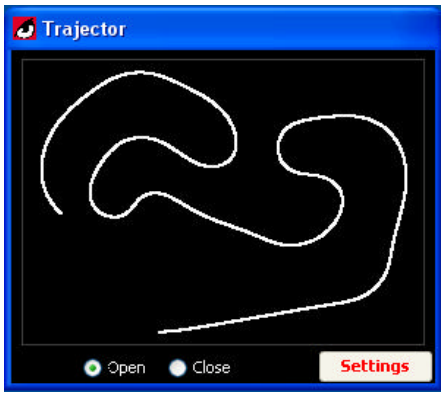


Illustration 12b : Trajector / Open

The green points that you can see on the trajectory represent the magnetic strips or the position of the infrared transmitters present on the track.

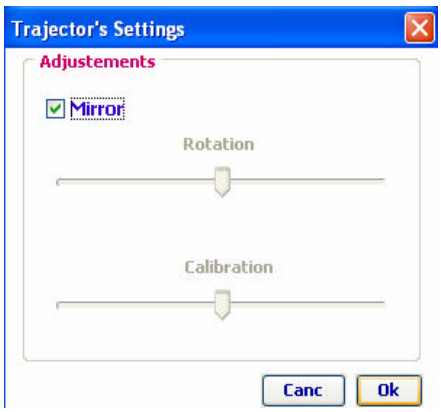


Illustration 12c : Trajector's Settings

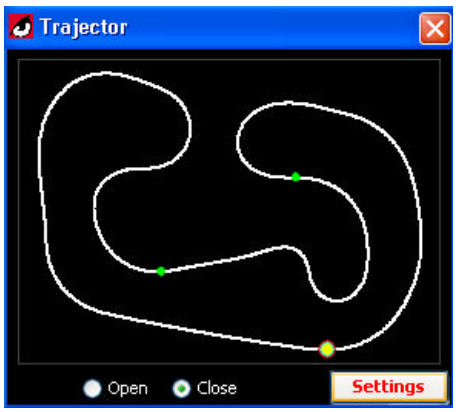


Illustration 12d : Mirror effect

The Partial Section Table gives precise information on each sector.