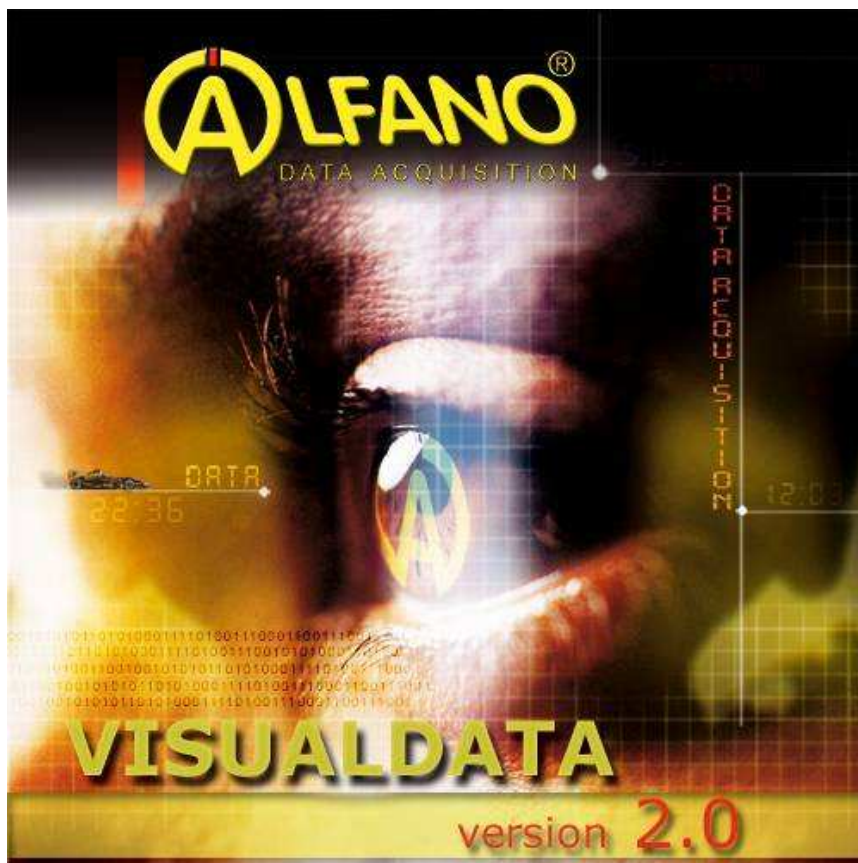




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Introduction

The graphic user-interface proves to be very simple and intuitive, it allows, since the launching of the program, the direct access to all its functionalities.

To the starting, the program displays the section “Project Manager” to allow you managing the files already recorded and/or the creation of new files through the download of the data of the device.

To the starting, the program displays the window presented in Illustration 1

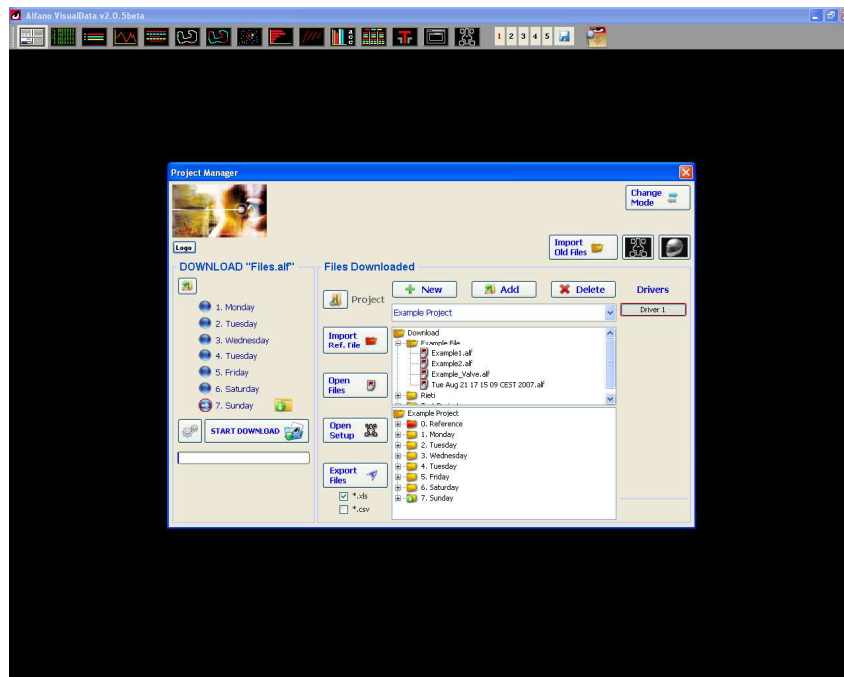


Illustration 1. Window that appears to the starting of the program

The *toolbar* allows to reach all sections of the program. It always remains visible in the top of the screen in order to make you able to open and to close the different sections of the program.



Illustration 2. Toolbar

In top on the left, in the different sections of the program, you can see different icons appear. These icons, described below, are the same for all sections :



Icon for the access to the regulating and to the organization of the section.



Icon for the export in format pdf of all information visualized in the section.



Icon for the paper printing of all present information in the section with pre-visualization of the printing.



Illustration 3. Visualization of the printing layout of the Graphics section

Priority Layer 2

Thanks to this icon, in every section, you will be able to adjust the priority of visualization. In this way, if on the same screen must appear different sections in superposition, you will be able to manage the plans (1st plan, 2nd plan, etc). The degrees of priority go from 1 to 3. The 3 being the most important and the 1 least important.

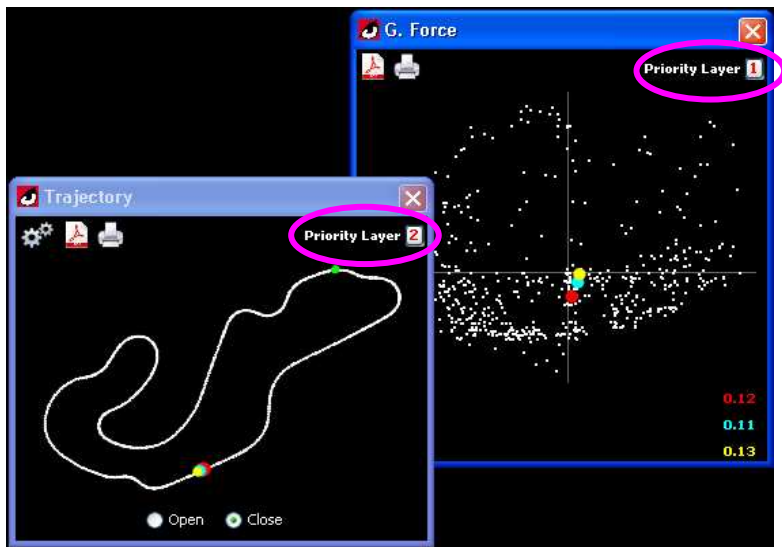


Illustration 4. As you can see it on this example, even though the currently activated section is the “G. Force”, the Trajectory section remains to the first plan because its degree of priority of visualization is superior.

Section Project Manager

In this section are managed all projects, the downloaded files, the associations of files with pilots, the download of data and the organization of the records of general setup.



Illustration 5. Section Project Manager

Functions managed by the section “Project Manager”:



Import your picture

Part of the section Project Manager who allows you to choose a logo. The chosen picture will be retaken from this place but also on all layouts of printing and/or all documents pdf generated by the software.



Edit list of pilots to manage

In this section, you can choose between 2 modes of management of the names of the pilots :

Single Driver : Independently of the serial number of the device, the software will associate the pilot's name writes down in the slot of text to all downloaded files.

Team : In the setting of an association, write down the pilot's name in front of the serial number of his device will allow, while downloading, to check the serial number automatically and to mark the pilot's name that corresponds in order to associate to him the downloaded file.

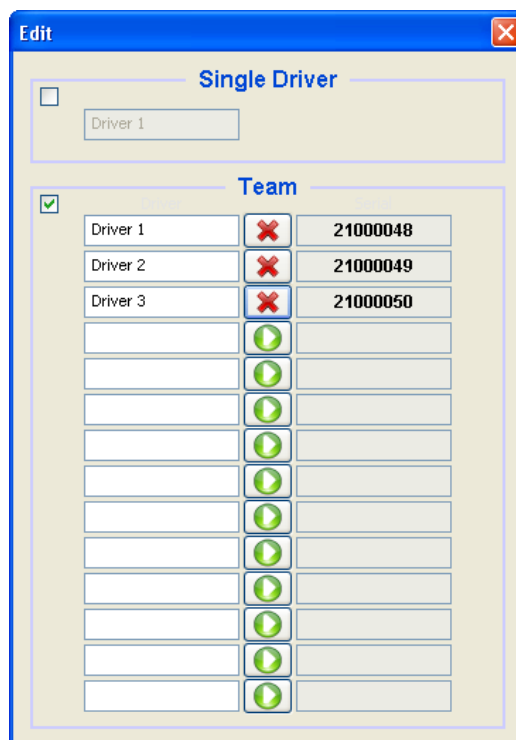


Illustration 6. Management association serial number - pilot name

In this example, the data downloaded from the device carrying the serial number “21000048” will be associated to the name of pilot “Driver1”



The icon, before the creation of the association, serves to the referring of the serial number of the Alfano.

NB: The device should be in the menu of “download” during the phase of referring of the serial number.



The icon, in created association, serves to eliminate the existing association, a window of confirmation will be displayed before the definitive elimination of the association.

Creation/Modification of the “General Setup”

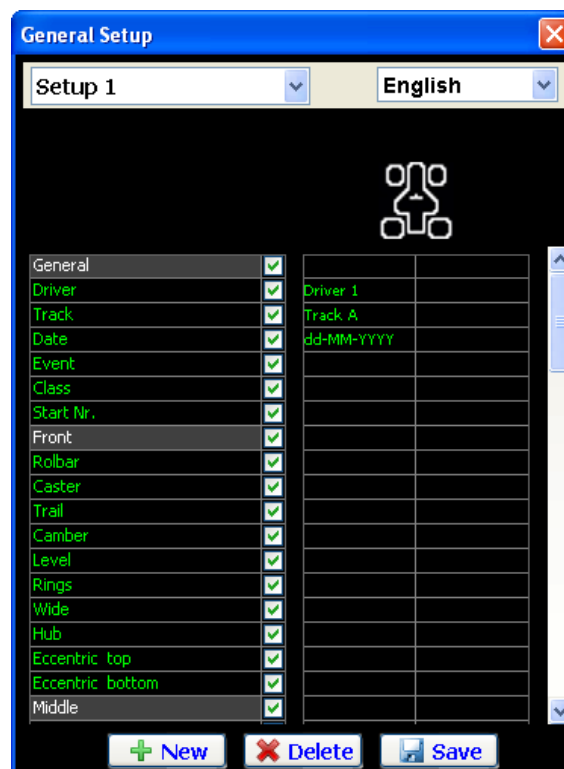


Illustration 7. General Setup Gestion

This operation allows to compile records of “General Setup”.

Choose the Setup on which you want to act, just click on the scrolling menu situated on the left in top and select the record of Setup wanted.

With the icons “New” and “Delete”, it is possible to create new records of setup and/or respectively cancel some cards already existing.

Immediately after the compilation or the modification of a record, it is possible to save the content of it thanks to the Save icon.

The goal of this section is to allow you to create records of measure of your vehicle before even that this one is in track and therefore, before even the creation of the file containing the data downloaded.

It will be possible to select/deselect the different present titles in the picture in order to have, in phase of analysis, a compact visualization of the titles of the setup records currently selected.



Icon allowing the import of downloaded dated files with former versions of the software. This functionality is accessible via a window of import in which it will be possible to select all files containing the .alf files that you want to import.

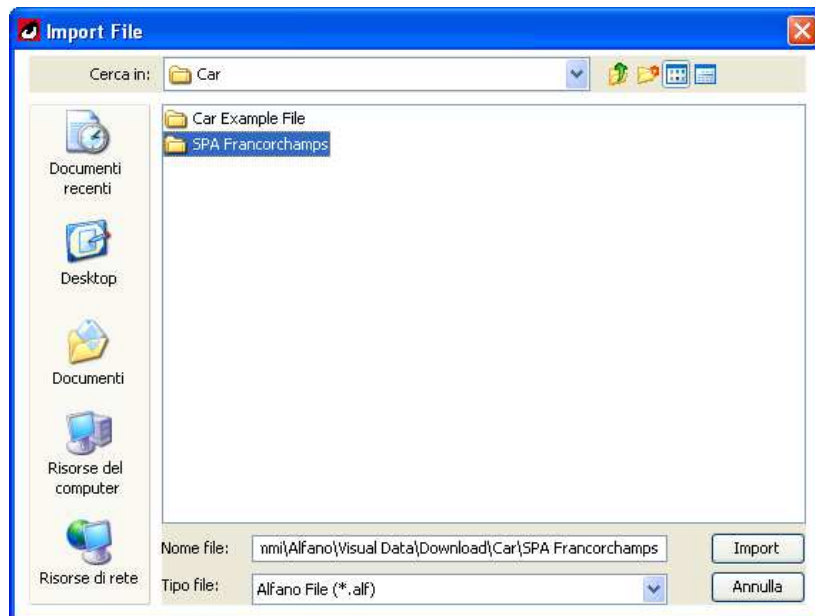


Illustration 8. Window allowing the selection of all files to import

NB: The window manages the multiple selection with the help of the keyboard keys “Ctrl” and “Shift” associated to the click of the left button of the mouse.



Icon allowing to organize the method of use of Project Manager, you can choose thus between the “Simple” or “Professional” mode. In the “Simple” mode, it won't be possible to manage the projects, pilot name associations and files downloaded, nor management of Setup records.

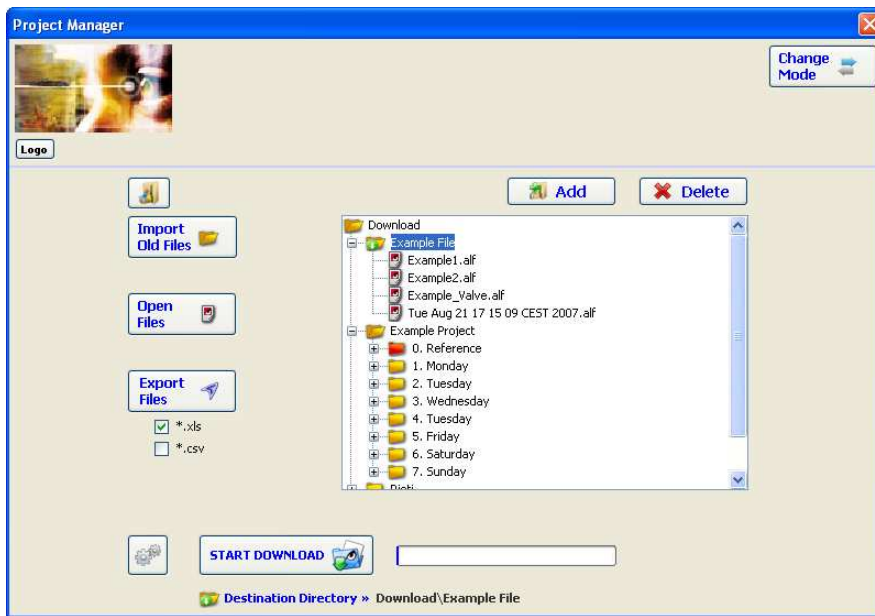


Illustration 9. Section “Project Manager” in “Simple” mode



Icon allowing the creation of a new project

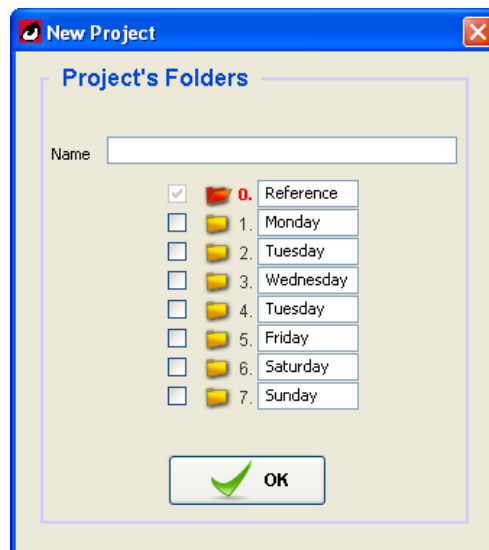


Illustration 10. Window allowing the creation of a new project

To create a new project, just insert a valid name in the slot of text in top and select the directory that the project should contain, then click on “OK” to confirm.



Icon allowing to add new directory to the project



Icon allowing to erase a project and all its content, before doing the operation, the program will display a message of confirmation, you will be thus able to decide to continue or to stop/cancel the operation.

Data Transfer:

To use this function, just select a directory of destination (one of those already present among previously created ones or add one through the button “Add” and select it immediately after) on the part on the left of the section (Download “Files .alf”), and click with the help of the mouse on “START DOWNLOAD”, immediately after, the appellation on the button will become “STOP DOWNLOAD” allowing, if wished, to stop the operation in progress. At the end of the download process, a file containing all downloaded information of the device (Astro LV, Pro+ LV, Astro, Pro+, Astro Formula, Vision) is saved, this file has a .alf extension and is displayed in the directory of destination being in the arborescence structure of the section part Files Downloaded. On the downloaded file, you can do various operations thanks to a *popup* menu that appears while doing a right click with the mouse when placed on the file on which you want to act.

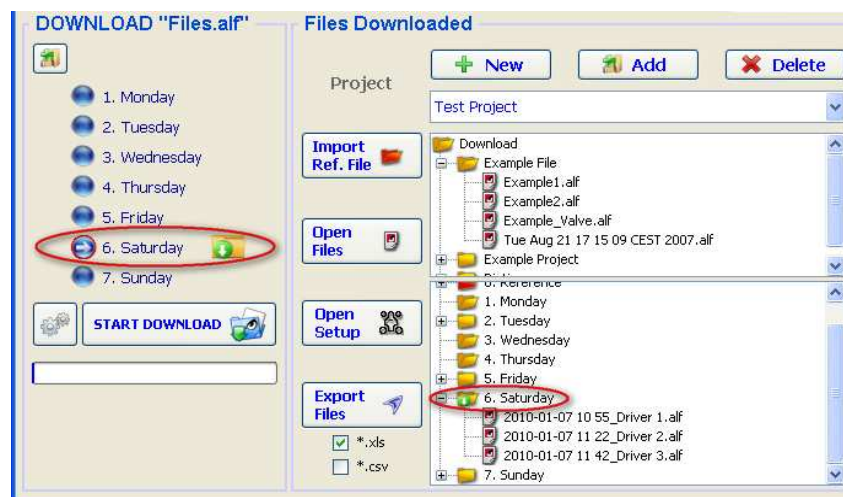


Illustration 11. Section of “Dialog managerial” that serves to the data transfer of the system toward the computer and to the organization of the files created. In the illustration, the directory of destination of the files to download is put above in evidence.



Icon allowing the insertion - in the Project in progress - of .alf files that doesn't come from the phase of download but that have been imported of previous projects, but just as files of reference.



Icon allowing the opening of all files currently selected in the arborescence structure of "Files Downloaded".



Icon allowing the opening of the compilation phase of the Setup panels relative to only one pilot selected. Just after having clicked on this icon, you will see the present window in the illustration xx allowing the pilot's selection for which the setup must be modified. All files associated to this pilot will be then open, as well as all Setup panels ready to be compiled.



Illustration 12. Choice of the pilot for which one wishes to manage the compilation of Setup panels

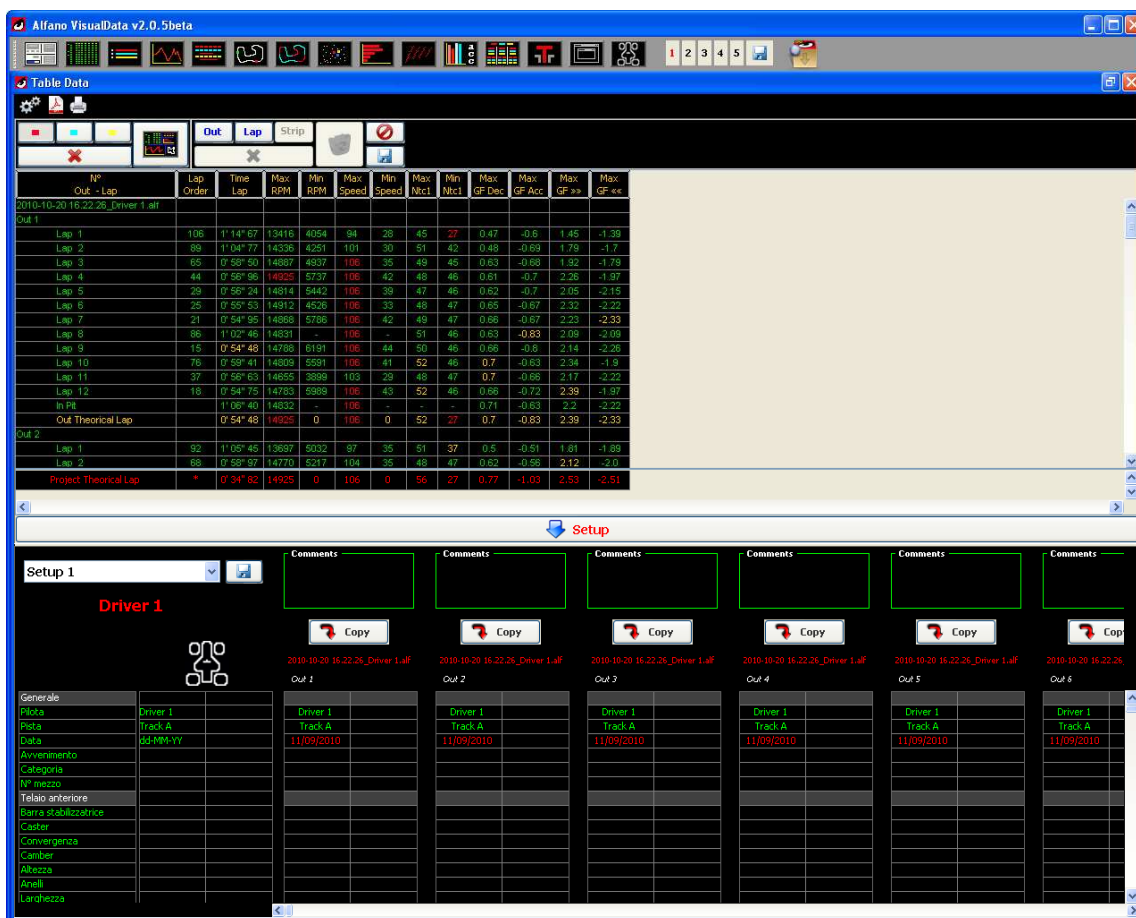



Illustration 13. Compilation of the Setup panels of pilot “Driver 1”

Compilation phase of the Setup panels relative to pilot “Driver 1”.

On the left side of the section, you will be able to choose thanks to the scrolling menu the general Setup to which you wish to refer. All records of present setup for every raised exit will display in red the different titles in report to the general setup. The button “Copy” present in every record of setup serves to copy the content of the previous record in progress within the record. In order to simplify the procedure of compilation, while copying the content of the previous setup, only the efficient modifications by report to the previous exit will be copied.

The button  allows to save all brought modifications.

The button  permits to close and to open the section of setup to give more or less space of visualization to the panel containing the data. It is also possible to adjust the dimension of the space reserved to the visualization of the setup records.

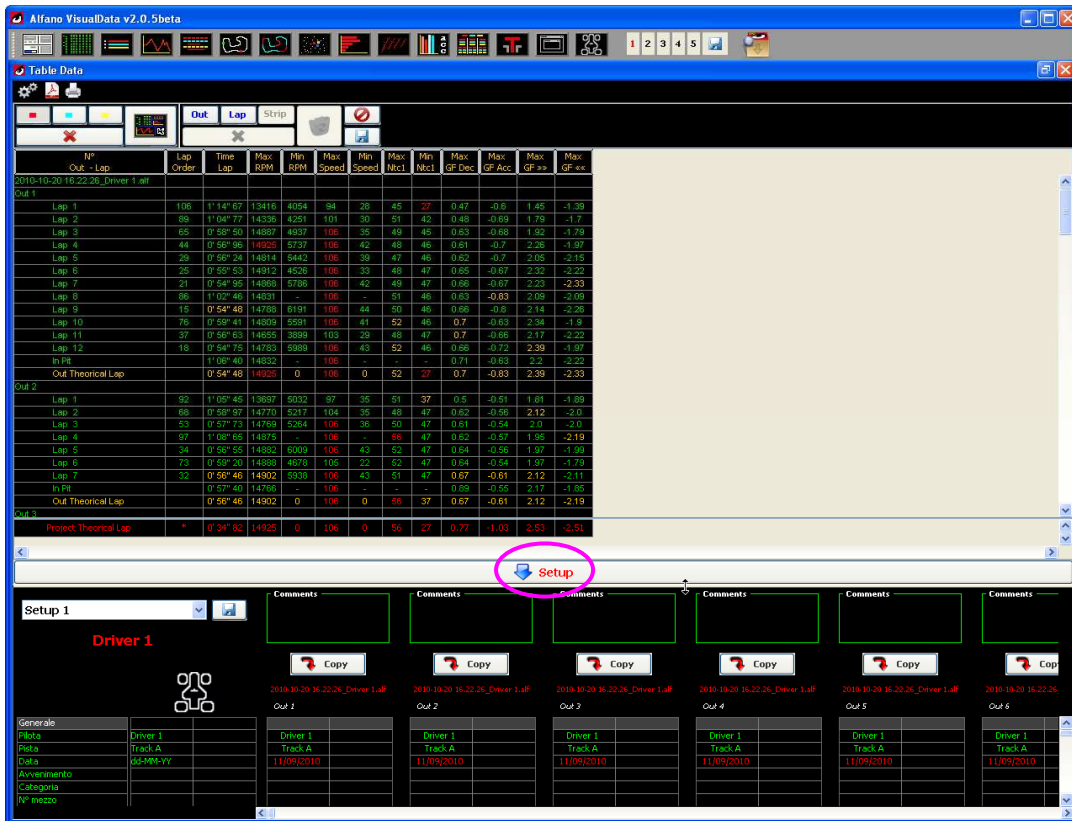
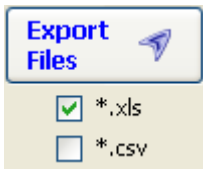


Illustration 14. Dimensions of the space reserved to the setup records.



Icon allowing the export of the .alf files selected in the .xls and/or .csv files.

Serial Number: 41000140	Name: Driver 1														
Lap	Time Lap [1/100 s]	Strip	Time Strip [1/100 s]	Absolute Time [1/100 s]	Time [1/100 s]	RPM	Speed [km/h]	Valve	Nct [°C]	A. Long. [G]	A. Lat. [G]				
1	0'50"21	1	0'50"21	0'00"00	0'00"00	14466	97	1	31	9	-6				
				0'00"10	0'00"10	14313	97	1	31	12	0				
				0'00"20	0'00"20	14172	96	1	31	14	9				
				0'00"30	0'00"30	14022	95	1	31	17	13				
				0'00"40	0'00"40	13869	94	1	31	17	3				
				0'00"50	0'00"50	13699	93	1	31	22	9				
				0'00"60	0'00"60	13536	92	1	31	25	28				
				0'00"70	0'00"70	13383	91	1	31	29	53				
				0'00"80	0'00"80	13182	89	1	31	35	81				
				0'00"90	0'00"90	13018	88	1	31	36	80				
				0'01"00	0'01"00	12856	87	1	32	39	120				
				0'01"10	0'01"10	12695	86	1	32	36	133				
				0'01"20	0'01"20	12507	85	1	32	30	90				
				0'01"30	0'01"30	12343	84	1	32	30	122				
				0'01"40	0'01"40	12156	83	1	32	24	127				
				0'01"50	0'01"50	11982	82	1	32	23	121				
				0'01"60	0'01"60	11850	81	1	32	23	132				
				0'01"70	0'01"70	11728	80	1	32	23	144				
				0'01"80	0'01"80	11608	79	1	32	23	124				
				0'01"90	0'01"90	11509	78	1	32	27	149				
				0'02"00	0'02"00	11380	77	1	33	24	147				
				0'02"10	0'02"10	11217	76	1	33	23	144				
				0'02"20	0'02"20	11137	76	1	33	24	150				
				0'02"30	0'02"30	11080	75	1	33	12	140				
				0'02"40	0'02"40	11051	75	1	33	8	157				
				0'02"50	0'02"50	11046	75	1	33	0	150				
				0'02"60	0'02"60	11002	74	1	33	-2	78				
				0'02"70	0'02"70	11025	75	1	33	-5	90				
				0'02"80	0'02"80	11057	75	1	33	-4	136				
				0'02"90	0'02"90	11106	75	1	33	-10	112				
				0'03"00	0'03"00	11169	75	1	34	-6	138				
				0'03"10	0'03"10	11158	75	1	34	-5	106				
				0'03"20	0'03"20	11136	75	1	34	-3	103				
				0'03"30	0'03"30	11158	75	1	34	-7	84				
				0'03"40	0'03"40	11210	75	1	34	4	131				
				0'03"50	0'03"50	11171	75	1	34	0	131				
				0'03"60	0'03"60	11199	75	1	34	3	65				
				0'03"70	0'03"70	11156	75	1	34	7	79				
				0'03"80	0'03"80	11032	74	1	34	4	111				
				0'03"90	0'03"90	11022	74	1	34	-6	51				
				0'04"00	0'04"00	10952	74	1	34	-5	18				
				0'04"10	0'04"10	10904	74	1	34	-4	0				
				0'04"20	0'04"20	10894	73	1	34	-5	-32				

```

"0" "01" "80" "01" "80" "5261.0" "45.0"
"0" "01" "90" "01" "90" "5229.0" "45.0"
"0" "02" "00" "02" "00" "5211.0" "44.0"
"0" "02" "09" "02" "09" "5197.0" "44.0"
"0" "02" "20" "02" "20" "5194.0" "44.0"
"0" "02" "30" "02" "30" "5184.0" "44.0"
"0" "02" "40" "02" "40" "5174.0" "44.0"
"0" "02" "50" "02" "50" "5174.0" "43.0"
"0" "02" "60" "02" "60" "5166.0" "43.0"
"0" "02" "70" "02" "70" "5168.0" "43.0"
"0" "02" "80" "02" "80" "5178.0" "43.0"
"0" "02" "90" "02" "90" "5184.0" "43.0"
"0" "03" "00" "03" "00" "5191.0" "44.0"
"0" "03" "10" "03" "10" "5201.0" "43.0"
"0" "03" "20" "03" "20" "5199.0" "44.0"
"0" "03" "30" "03" "30" "5207.0" "44.0"
"0" "03" "40" "03" "40" "5225.0" "44.0"
"0" "03" "50" "03" "50" "5239.0" "44.0"
"0" "03" "60" "03" "60" "5240.0" "44.0"
"0" "03" "70" "03" "70" "5258.0" "44.0"
"0" "03" "80" "03" "80" "5262.0" "44.0"
"0" "03" "90" "03" "90" "5263.0" "44.0"
"0" "04" "00" "04" "00" "5286.0" "44.0"
"0" "04" "10" "04" "10" "5284.0" "44.0"
"0" "04" "19" "04" "19" "5329.0" "44.0"
"0" "04" "30" "04" "30" "5358.0" "45.0"
"0" "04" "40" "04" "40" "5367.0" "45.0"
"0" "04" "50" "04" "50" "5385.0" "45.0"
"0" "04" "60" "04" "60" "5363.0" "45.0"
"0" "04" "69" "04" "69" "5383.0" "45.0"
"0" "04" "80" "04" "80" "5384.0" "45.0"
"0" "04" "90" "04" "90" "5405.0" "45.0"
"0" "05" "00" "05" "00" "5432.0" "45.0"
"0" "05" "10" "05" "10" "5409.0" "45.0"

```

Section Table Data







To the opening of the files, a picture containing all information of these files will be displayed. In this picture, it is possible to do different operations. The illustration 15 shows the diagram immediately visualized after having opened some selected files.


Out - Lap	Lap Order	Time Lap	Strip 1	Strip 2	Strip 3	Max RPM	Min RPM	Max Speed	Min Speed	Max Acc	Min Acc	Max G Dec	Min G Dec	Max G Acc	Min G Acc	Max G Dec	
Example1 all																	
Out 1																	
Lap 1	10	1'00'51	0'30'64	0'14'93	0'15'34	18002	7793	103	48	33	20	61	33	0.42	-0.82	1.81	-1.88
Lap 2	9	0'54'22	0'25'49	0'14'14	0'14'50	17229	8598	111	50	30	30	69	50	0.42	-0.8	2.04	-1.96
Lap 3	8	0'48'00	0'23'63	0'12'92	0'13'38	16914	8650	110	62	43	30	78	69	0.43	-0.88	2.18	-2.02
Lap 4	6	0'50'02	0'23'29	0'13'22	0'13'51	18885	8377	122	55	46	44	82	71	0.58	-0.92	2.18	-2.19
Lap 5	3	0'48'18	0'23'21	0'12'54	0'13'43	18759	8483	121	63	47	46	88	76	0.55	-0.87	2.48	-2.07
In Pit		1'05'18	0'23'25	0'12'71	0'20'20	18522	-	119	-	-	-	-	-	0.62	-0.92	2.27	-2.43
Out Theoretical Lap		0'49'13	0'23'21	0'12'54	0'13'20	18885	7793	122	48	47	20	88	50	0.58	-0.82	2.48	-2.07
Out 2																	
Lap 1	11	1'04'43	0'32'55	0'18'01	0'15'37	14817	8959	96	44	32	24	55	32	0.4	-0.84	1.67	-1.58
Lap 2	9	0'57'11	0'28'14	0'14'42	0'15'55	15761	8843	101	59	37	32	63	52	0.5	-0.85	1.92	-1.8
Lap 3	7	0'50'67	0'24'56	0'12'75	0'13'36	16140	8688	117	61	45	37	58	61	0.86	-0.71	2.28	-2.05
Lap 4	2	0'49'12	0'23'03	0'12'33	0'13'21	15189	8511	124	61	48	45	90	79	0.79	-0.77	2.43	-2.19
Lap 5	4	0'48'45	0'23'52	0'12'62	0'13'31	18403	8352	118	60	48	46	90	78	0.59	-0.79	2.31	-2.23
Lap 6	1	0'48'78	0'23'30	0'12'56	0'13'30	18400	8683	135	63	48	47	92	81	0.8	-0.88	2.48	-2.14
In Pit		1'08'43	0'23'52	0'13'57	0'31'40	19112	-	123	-	-	-	-	-	0.58	-0.85	2.14	-2.19
Out Theoretical Lap		0'48'78	0'23'50	0'12'56	0'13'20	18400	8959	135	48	46	24	90	80	0.79	-0.88	2.28	-2.23
Project Theoretical Lap																	
	8	0'48'74	0'23'46	0'12'54	0'13'20	18400	8959	135	48	46	24	90	80	0.79	-0.88	2.28	-2.23


Illustration 15. Panel containing the open file data

In this panel, it is possible, thanks to the icons “Out” and “Lap”, that are on the right in top, to select the lines that interest you the less (the least important laps for example) and to eliminate them. With the “Out” icon, the lines will be selected while considering, for every click of mouse, all laps of the exit to which they belong. With the “Lap” icon, it will be possible to select some laps and while associating the “Ctrl” key, the selection of the laps will even be managed for laps that don't follow themselves. You will thus be able to select laps of different exits or different files.

With the button “Strip”, it is possible to eliminate the first partial of the current lap and to displace behind 1 all partials of the successive laps to the current one. This operation will change the times of all laps and the magnetic field of departure of all laps concerned.



After the selection phase with the use of the icon  it is possible to eliminate the lines in grey on the panel previously selected. With the icon  you can cancel the action of displacement of the laps that has already been achieved. Thanks to the icon  you save the modifications in a permanent way on the current files. The icon  serves to clean the present selection panel.

It is possible thanks to the icon  to filter the columns visualized in the panel, the columns of Max and Min relative to every application selected in this menu are visualized in the panel, while deselecting an application, the columns Max and Min corresponding to the channel of data deselected will be removed.

The colorful buttons present in top on the left of this section serve to select the lines of the picture and therefore the laps that one wants to analyze, after the selection of these lines, through the  icon, it is possible to do a detailed analysis of the selected laps.

NB: To do the analysis of the laps, it is necessary to select a lap of reference. This lap of reference is represented in red.

It is possible to manage until 5 different organization layouts of the analysis sections. Every layout keeps the information concerning the relative section state to the analysis, the layout records - for every section - the information of visibility, priority layer, the dimension of the window and the coordinates of the screen where the section is positioned.

To memorize a layout, you just have to choose one of it while selecting a number from 1 to 5  on program toolbar, arrange then on the screen as you want the analysis screens set and to finish, click on the icon  to save permanently the modifications done to your diagram of visualization.

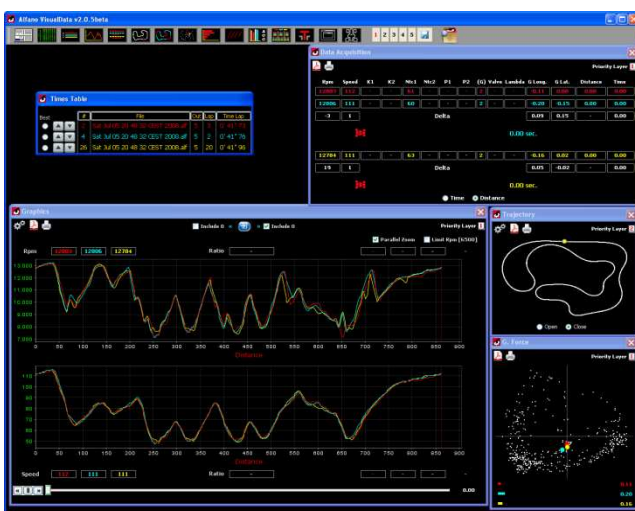


Illustration 16. Example Layout 1



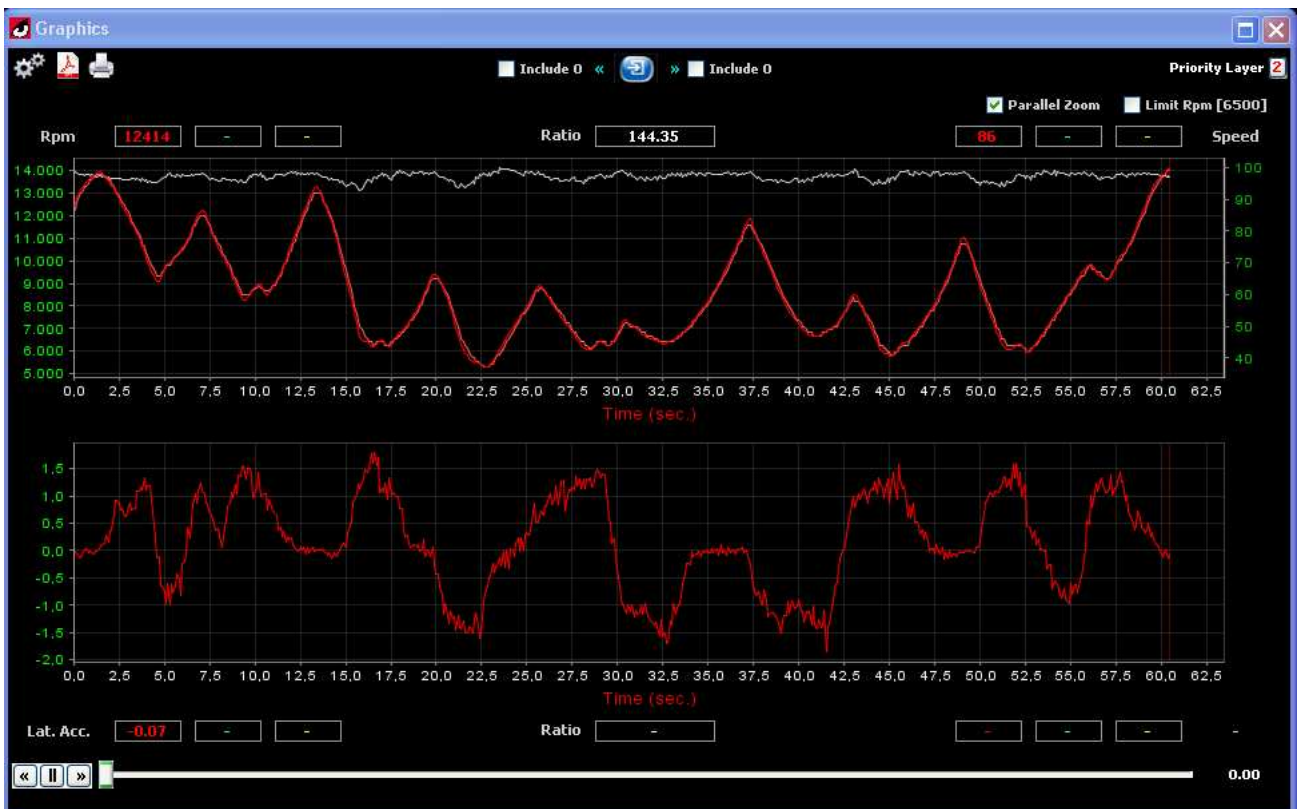
Illustration 17. Example Layout 2

The analysis is represented by the following sections of the application :

- Graphics
- Times Table
- Data Acquisition
- Histogram
- Trajectory
- GForce
- Compare Laps
- Gear Chart
- Acceleration Chart
- Table Partial
- Rave Valve


Section Graphics

Section Graphics is the instrument that serves to visualize all samplings of the laps thanks to the 2d functions created with time or distance.



*Illustration 18: Section Graphics used for the representation of the samplings of **RPM** (reported to the axis on the top left) the samplings of **Speed** (reported to the axis on the top right) and the samplings of **Lateral G.Force** (reported to the axis on the left below)*

NB: NB: The grey color curve visualized in the diagram in top is the curve of "Ratio". This curve shows the report between the data channel of left (RPM) and the data channel of right (Speed).

As one can deduct from the illustration 6 in the diagram, it is possible to superimpose two types of data of different nature that make reference respectively to the 2 axes of the distinct ordinates, placed one on the left and the other on the right of the section. The curve of darker colour find its reference in the left axis while the lighter colour curve finds its reference in the right axis. The icon  in the top center of this section serves to choose which channels of data to visualize. The scroll bar serves to the displacement of a vertical line along the diagram, this one permits to identify a reference at one given time or to a very precise distance on the lap. In the window of Data Acquisition are visualized the samplings relative to this reference marked by the line. The possibility exists "to zoom" merely inside the diagram while holding pushed the left key of your mouse, putting this way in evidence a part of curve. The keys "Include 0" serve to avoid to superimpose the data making reference to different typologies. The buttons simulation present below on the right serve to manage the automatic movement of the scroll bar, it can be, at any moment, started, stopped or reset.

If the application "Parallel Zoom" is selected, inside the diagram the zoom will be done in parallel and at the same time on the 2 selected diagrams, while removing this application, it will be possible to do a zoom more detailed on the two diagrams in a distinct manner.

The application "Limit Rpm [6500]", if it is selected, insert in the diagram a right line to 6500 rotations/minute.

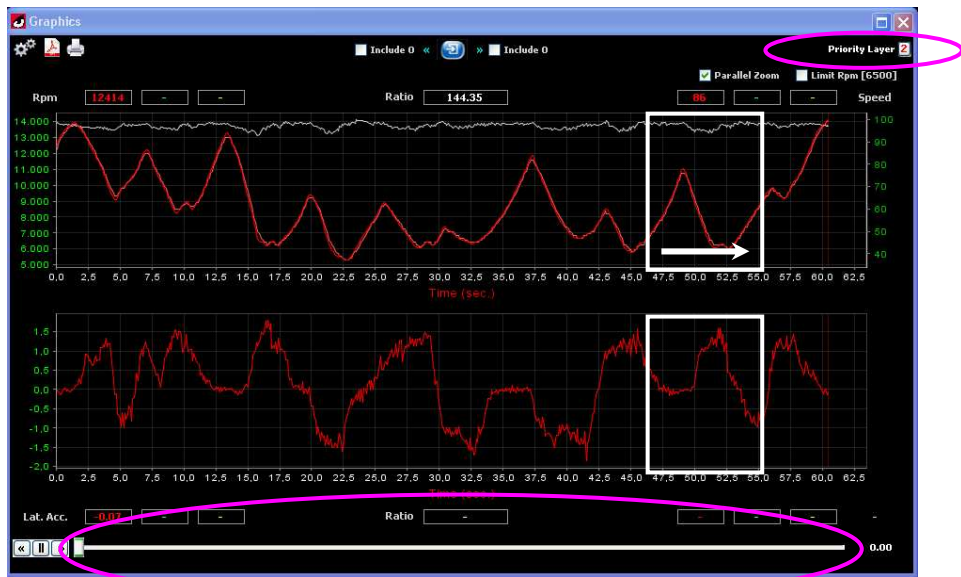


RESET

STOP

START

Keys for the automatic movement of the scroll bar.



Very precise movements

Fast movements but little precise

Illustration 19. Scroll bar use

Illustration 20. Window that serves to choose channels of data to visualize in the diagrams

The left part marked with the number “1” refers to the diagram in top of the section, the first column makes reference to the channel of data referenced on the left axis of the diagram and the second column makes reference in the channel of data referenced on the right axis of the diagram.

The right part marked with the number “2” refers to the diagram at the bottom of the section, the first column makes reference to the channel of data referenced on the left axis of the diagram and the second column makes reference to the channel of data referenced on the axis of right of the diagram.

NB: While selecting Nothing on the channels of data of the diagram “2” in the section remained visible solely on the diagram “1”

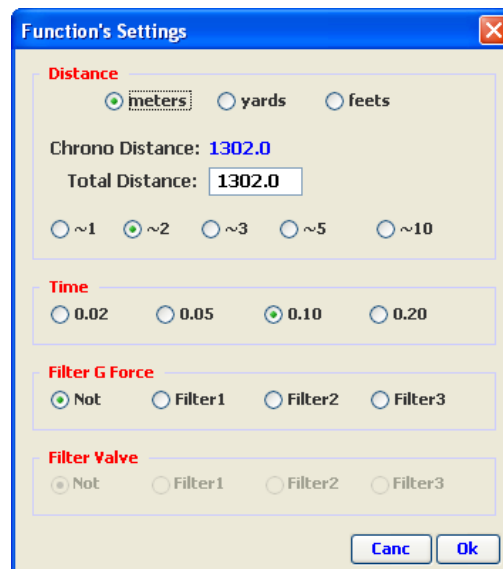


Illustration 21. Settings of the Section Graphics

The window of dialogue Function’s Setting (Illustration 8) is subdivided in 4 parts :

- Distance
- Time
- Filter G Force
- Filter Valve

The first concerns the setting of the functions when these have as reference the distance, the second permits the setting of the functions when these make reference to the time. The third and the fourth manage a filter of data respectively for the channel of the G-Force and a filter of data for the channel of the Rave Valve.

The part of the Setting window relative to the Distance serves to :

1. Choose the unit of measure of reference of the diagrams (Meters, Yard or Feet);
2. Visualize the application Chrono Distance that gives the distance calculated from the information memorized of the chronometer. It could happen nevertheless that this data is not very precise when the vehicle is submitted to actions that alters the value of it, as for example the blockage of the wheels during a certain lapse of time or a movement of slip on the track;
3. Modify the application Total Distance that allows the user to insert - if he knows it - the real distance of the trajectory; in this way, the diagrams will adapt to your encoded distance and either to the "Chrono Distance";
4. Visualize a set of buttons able to specify the movement precision of the scroll bar : if for example one selects ~2 (about 2) and that the chosen measure unit is the meter, every displacement of the scroll bar will correspond to an approximate distance of 2 meters.

The part of the window of Setting relative to the Time serves to :

1. Visualize a set of buttons able to specify the precision of the movement of the scroll bar : if for example one selects 0.10, every displacement of the scroll bar will correspond to a gap of time of 0.10 seconds.

The part of the window of Setting "Filter G Force" serves to eliminate possible nuisances in the hold of the samplings of G Force due to the Vibrations, etc...

It is possible to choose between 3 types of filters according to the degree of nuisance that the sensor undergone in phase of data acquisition. The filter 1 proves to be the least aggressive while the filter 3 is the most aggressive, therefore more the data by G force will have been distorted by nuisances, more the filter should be aggressive to improve the visualized data.

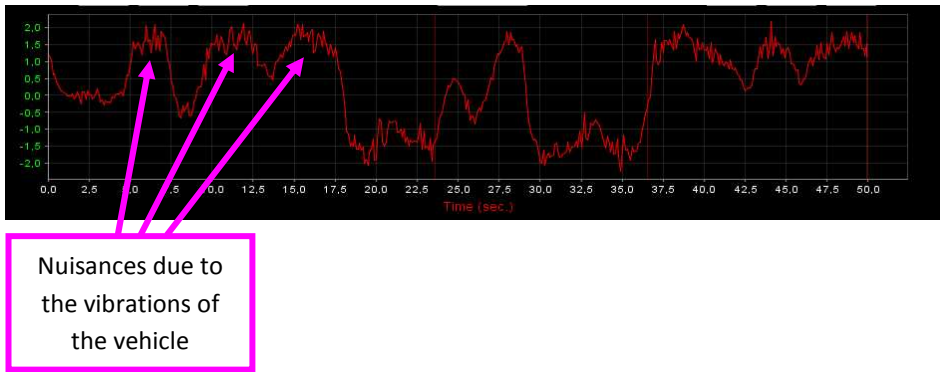


Illustration 22. G Force Channel

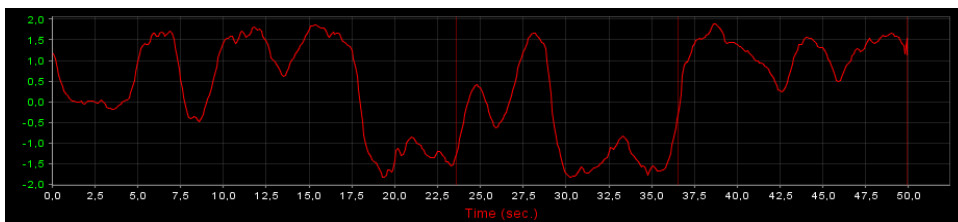


Illustration 23. G Force Channel after application of a filter

The part of the window of Setting “Filter Valve” serves to eliminate possible changes of state of too brief length of the valve.

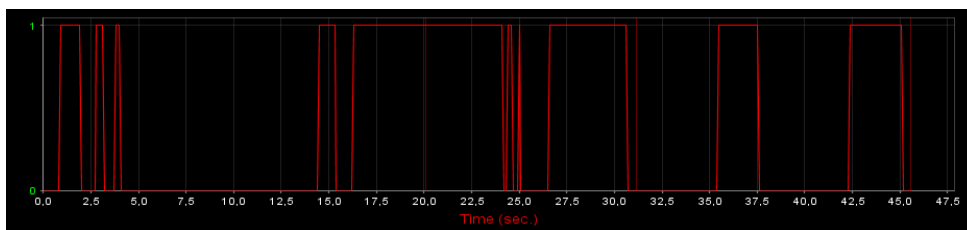


Illustration 24. Canal Valve Rave

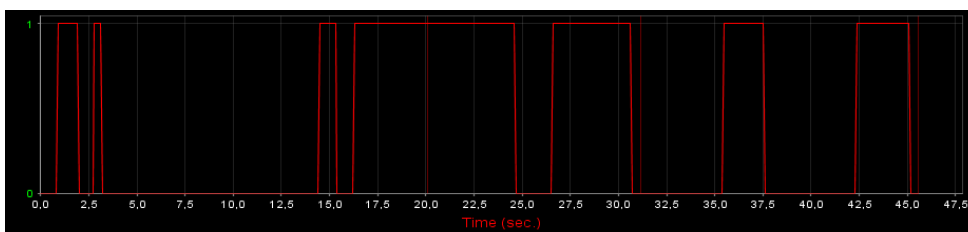






Illustration 25. Canal Valve Rave after application of a filter

Section Times Table

This section contains the main information concerning the selected laps that are in phase of analysis.

This section includes an automatic best lap research within the present

laps of all opened files of the project (Button “Best” ). It is also possible to use the mechanism of scrolling forward  and behind  of the different exit laps for every file currently open.

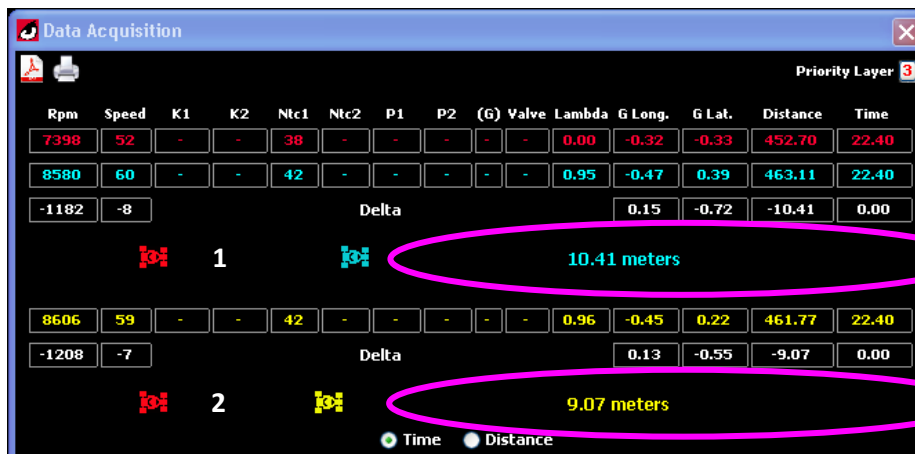


Best	#	File	Out	Lap	Time Lap	Time Strip 1	Time Strip 2	Time Strip 3
<input type="radio"/>	1	Example1.alf	2	6	0' 48" 76	0' 22" 90	0' 12" 56	0' 13" 30
<input type="radio"/>	2	Example1.alf	2	4	0' 49" 12	0' 23" 02	0' 12" 73	0' 13" 37
<input checked="" type="radio"/>	3	Example1.alf	1	5	0' 49" 18	0' 23" 21	0' 12" 54	0' 13" 43

Illustration 26. Times Table

Section Data Acquisition

The Section Data Acquisition serves to visualize, on each movement of the scroll bar, the values of samplings and the Delta (differences of time or distance) between the selected laps.



Rpm	Speed	K1	K2	Ntc1	Ntc2	P1	P2	(G)	Valve	Lambda	G Long.	G Lat.	Distance	Time	
7398	52	-	-	38	-	-	-	-	-	0.00	-0.32	-0.33	452.70	22.40	
8580	60	-	-	42	-	-	-	-	-	0.95	-0.47	0.39	463.11	22.40	
-1182	-8	Delta										0.15	-0.72	-10.41	0.00
														1	10.41 meters
8606	59	-	-	42	-	-	-	-	-	0.96	-0.45	0.22	461.77	22.40	
-1208	-7	Delta										0.13	-0.55	-9.07	0.00
														2	9.07 meters

Illustration 27. Window of Data Acquisition that serves to visualize the information to each movement of the scroll bar.

-
1. Delta Distance between the lap of reference (Red) and the Blue lap
 2. Delta Distance between the lap of reference (Red) and the Yellow lap

From this diagram, we can deduce that to 22.40" the vehicle that browses the red lap is to be behind the vehicle that browses the blue lap to a distance of 10,41 meters, the vehicle that browses the yellow lap, as for it, has little advantage in relation to the lap of reference, of 9,07 meters.

The buttons *Time* and *Distance* serve to the setting of the referring domain of the data to analyze. By choosing as referring domain the time, the Delta will refer to the distance, and vice-versa, by choosing the distance as referring domain, the Delta will refer to time.

Section Histogram

Histogram is the instrument that permits to group all samplings of the laps

selected by *range*, you have the possibility to make a setting of the ranges, while specifying their dimension. In the illustration 10, the range of the speed has been defined to 20 Km/h.

For each range, you can visualize the bars describing the time and the spent time percentage in the range in relation to the time on the lap.

It is possible to select each part of the histogram to visualize on the drawing of the trajectory of the circuit the points to which one is in track with the values in the chosen range, the illustration shows for three laps selected the points on the tracing of the trajectory between 80 and 100 Km/h.

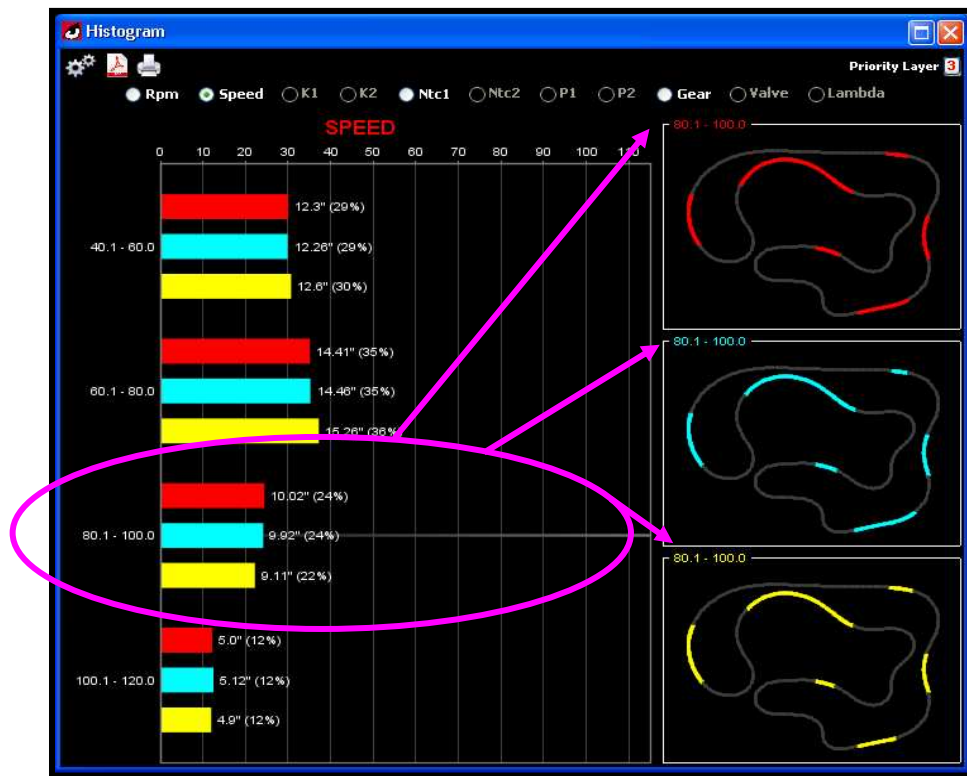


Illustration 28. Window Histogram of 3 selected laps.

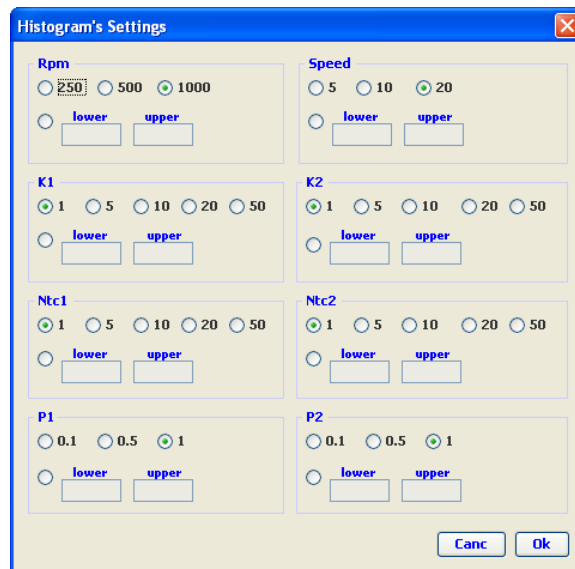


Illustration 29. Setting of the section Histogram useful to define the intervals for each type of sampling.

It is possible to manage the personalized ranges while inserting the value of the minimal limit (lower) and the value of the maximal limit (upper).

Section Trajectory

Trajectory is the section in which the trajectory of the lap is reconstituted thanks to the samplings of speed, of the lateral and longitudinal gravity acceleration. Within the trajectory, it is possible, thanks to the movement of the scroll bar of the Graphics section, to make move some points inside the tracing, these represent the vehicles that browse the laps selected regarding the time or the real distance browsed. With the buttons Open and Close, it is possible to view the real trajectory raised by the samplings of the chronometer or the closed trajectory.

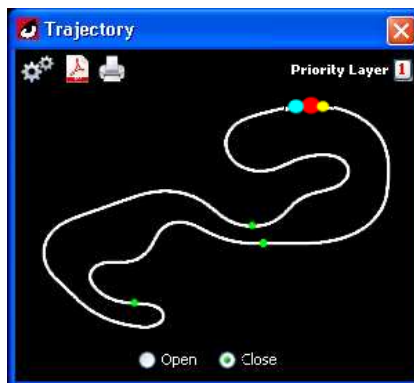


Illustration 30. Trajectory Close



Illustration 31. Trajectory Open

The green points visible on the trajectory represent the magnetic strips or the infrared transmitters presents on the track.

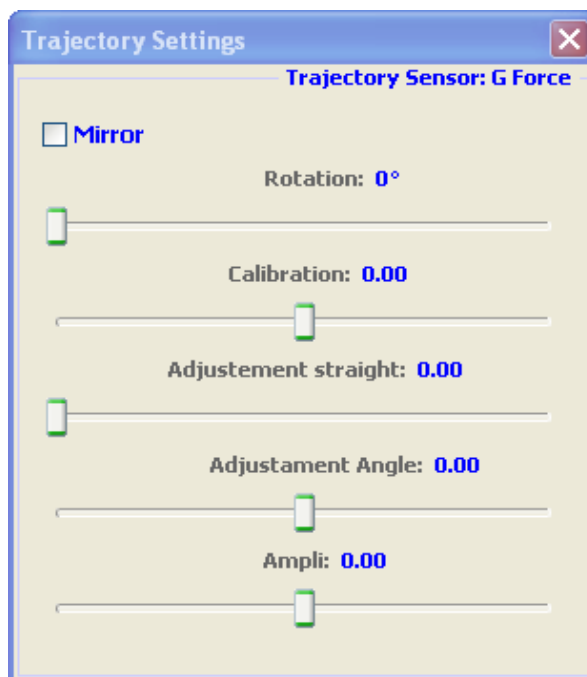


Illustration 32. Trajectory Settings

- Mirror : mirror effect of the horizontal axis of the diagram
- Rotation : allows to make vary the angle of the diagram
- Calibration : displace the calibration of the 0 of the samplings of G Force.
- Adjustment Straight : adjustment of the straight
- Adjustment Angle : adjustment of the angles of summary of the points
- Ampli: amplifier of the values of the samplings by G force.

The amplifying proves to be useful when a correct interrelationship doesn't exist between the samplings of G Force and the samplings of speed. It can be evident when in the parameters of configuration of the instrument, a faulty value of circumference of the wheel has been entered, indeed it will cause a distorted speed samplings reading and the tracing won't be able to be drawn correctly, except while changing the value of the amplification of the G force channel to adapt it to the samplings of speed distorted.

G Force Section

This section serves to the visualization of the graphic representation of the samplings of lateral and longitudinal G force.

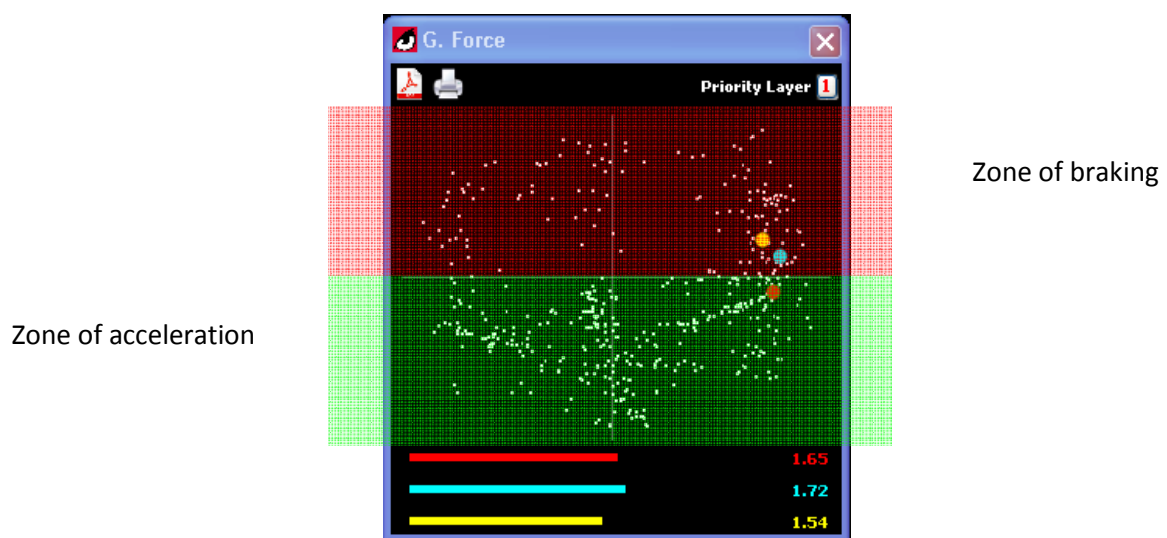


Illustration 33. Longitudinal G Force

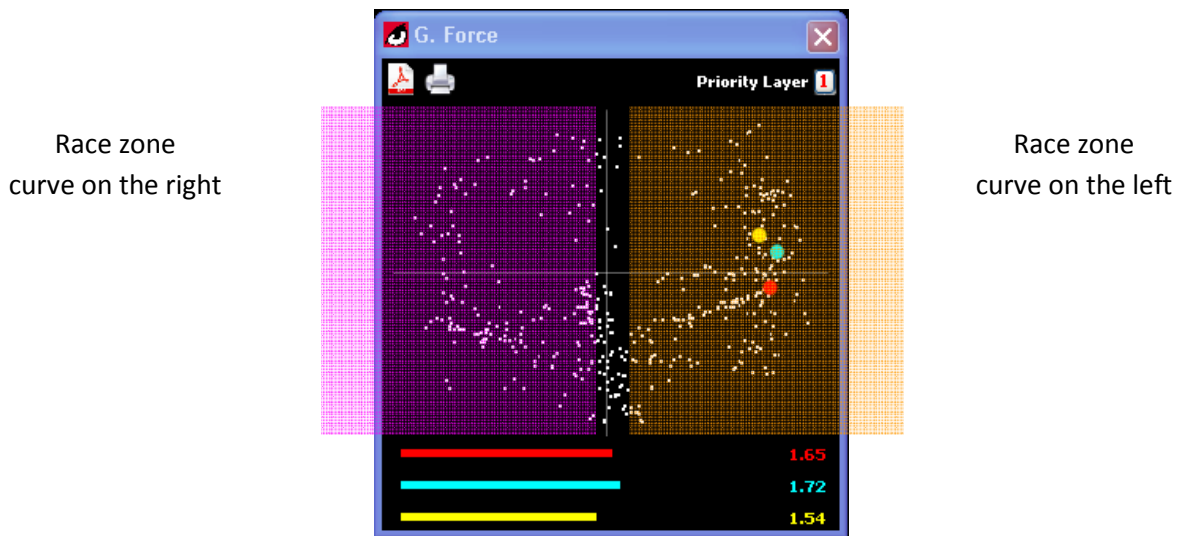


Illustration 34. As one sees it on the illustration, the three vehicles are browsing a curve on the left but the vehicle represented by the red point is not again in phase of braking contrary to the two others.

The bars below indicate the most meaningful value between the measure of lateral G Force and the measure of longitudinal G Force. In phase of course of a curve, the most meaningful value will be the one of the lateral channel, whereas for example, in detached phase at the end of a straight, the most meaningful value will be given by the longitudinal channel.

Section Compare Laps

This section serves to the comparison of the samplings of the data between two laps. The tracing is colored in the various features of color of the lap who proves to have a value of the principal data channel of the second lap of comparison. Each feature can be selected thanks to a click mouse. Once a selected feature, information of average of the values in that feature will be provided for each of the two laps and the delta between the two values of the averages. It is also possible to insert, via a double click mouse, small referring crosses allowing to visualize on a picture the exact value that the sampling assumes on the two laps in the point of insertion.

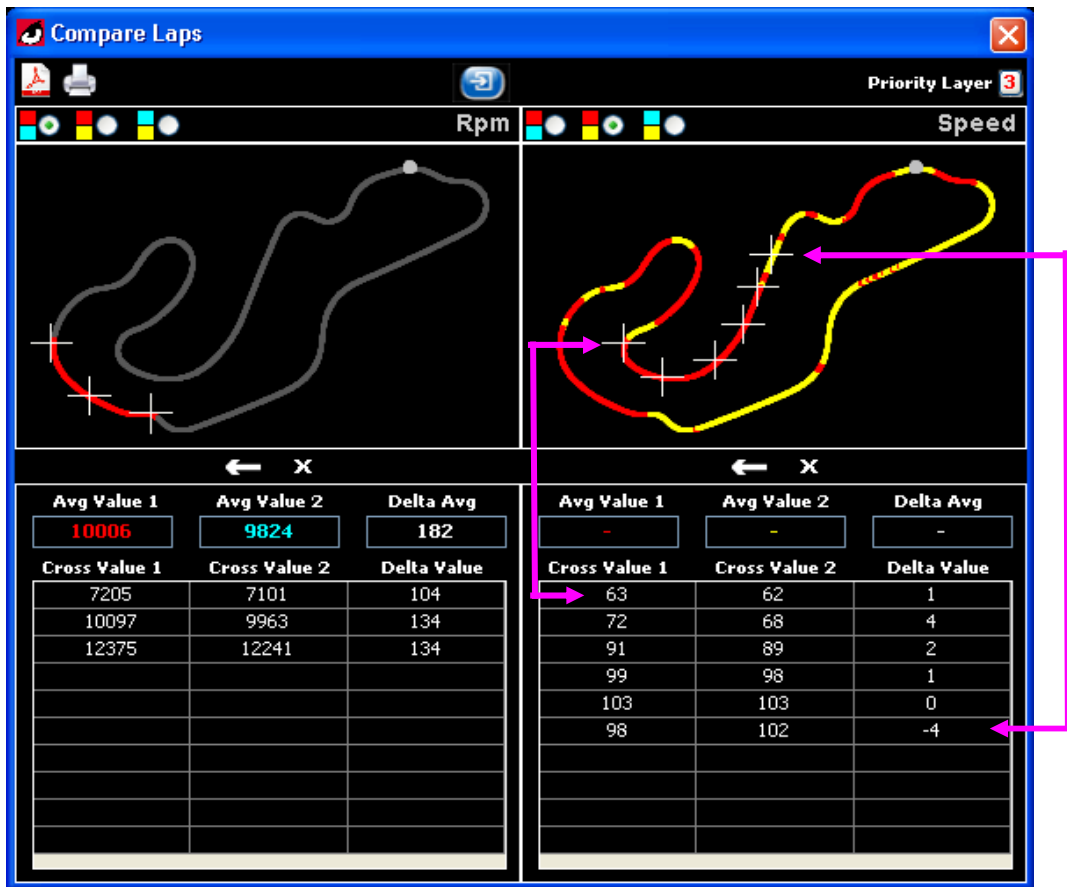








Illustration 35. Working Section "Compare Laps"

-  Comparison between the Red lap and the Blue lap
-  Comparison between the Red lap and the Yellow lap
-  Comparison between the Blue lap and the Yellow lap
-  Eliminate backwards, from the last, the small crosses inserted in the tracing
-  Eliminate all small crosses inserted in the tracing
-  Visualize the window that serves to choose the data channel for each diagram

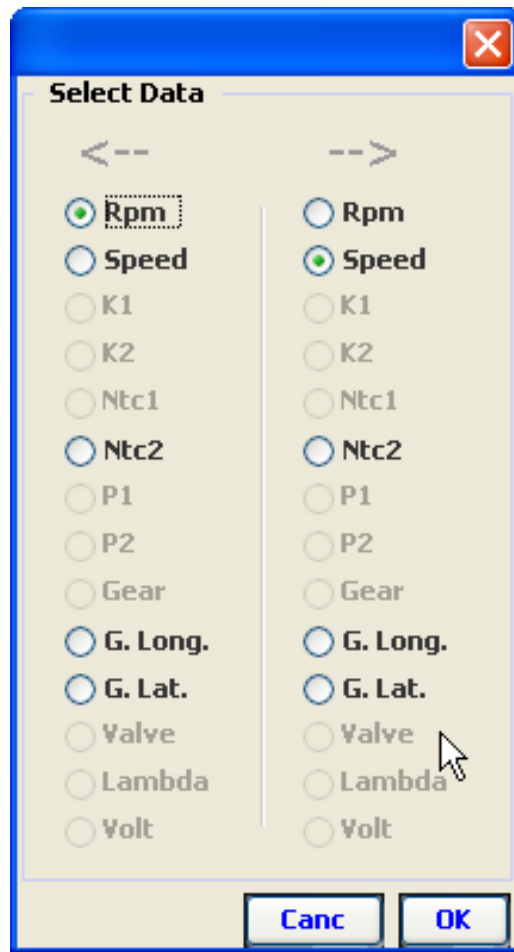


Illustration 36. Window that serves to select the data channel

Section Gear Chart

This section allows to see, for each selected lap, a diagram containing on the axis of the x the speed and on the axis of the y the motor regime. Each nebula of points represents a committed speed, on basis of the concentration of points of the nebula for each committed speed, one can get information on the transmission properties of the vehicle and one can value the behavior of the pilot regarding the change of speed.

More the nebulas of points will be concentrated, more the conduct of the pilot and the transmission reports will be good. The points present between two nebulas are the points of transaction between the passage of a speed to another.

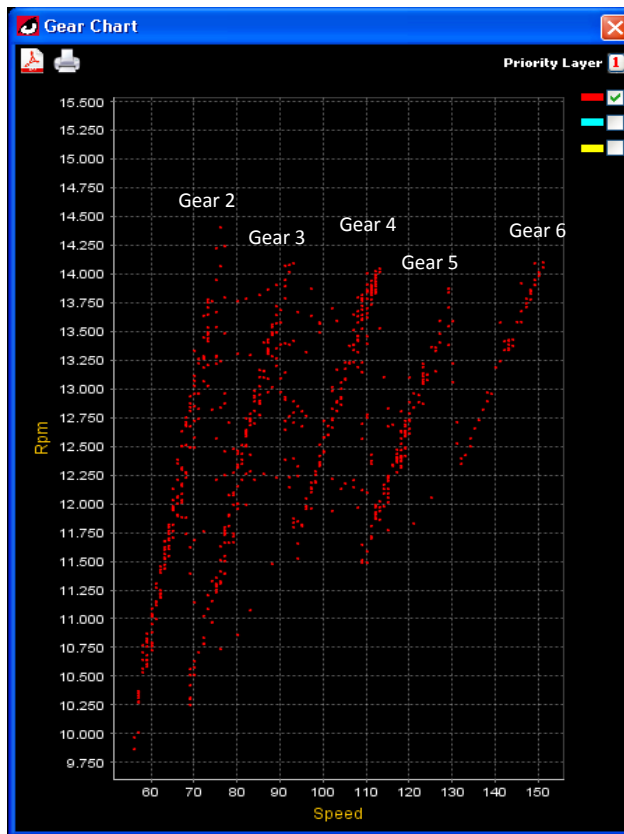


Illustration 37. Gear Chart of a selected tour

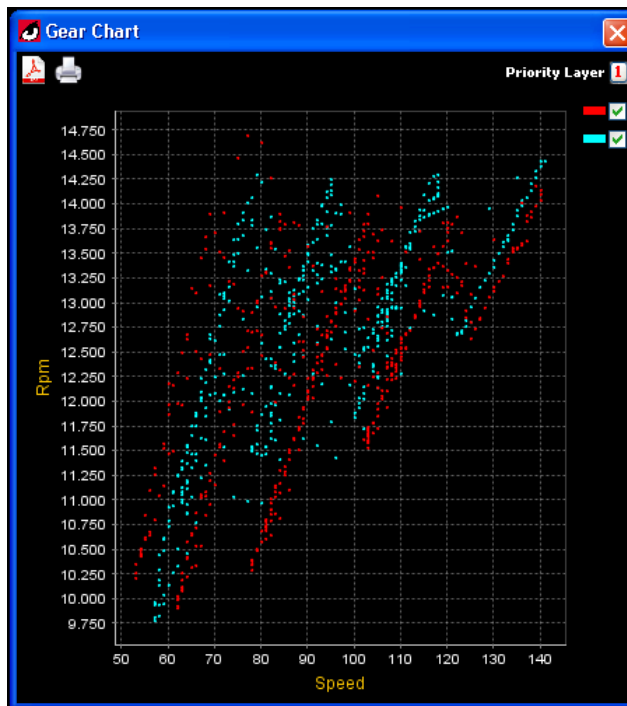


Illustration 37b. Gear Chart of two selected laps having different changes of speed

Section Acceleration Chart

This section serves to provide information on the acceleration of the vehicle due to the driving force.

In particular while providing a lower limit and a superior limit of motor regime or of speed and if it exists, while selecting a specific committed speed, will be visualized on every diagram representative the trajectory of each of the laps selected, all raised features of acceleration.

The information of acceleration pick visualized is merely the highest acceleration raised between the different sequences of acceleration, middle acceleration that provides the value of the average between the raised sequences of acceleration.

In addition, it will be possible to select a specific feature to visualize the instantaneous acceleration on the selected feature, the initial value of the motor regime or the speed, the final value of the motor regime or the speed and the delta that are the difference between final value – (less) the initial value, will be besides visualized the distance and the initial and final time instants and their respective deltas for each of the acceleration features selected.

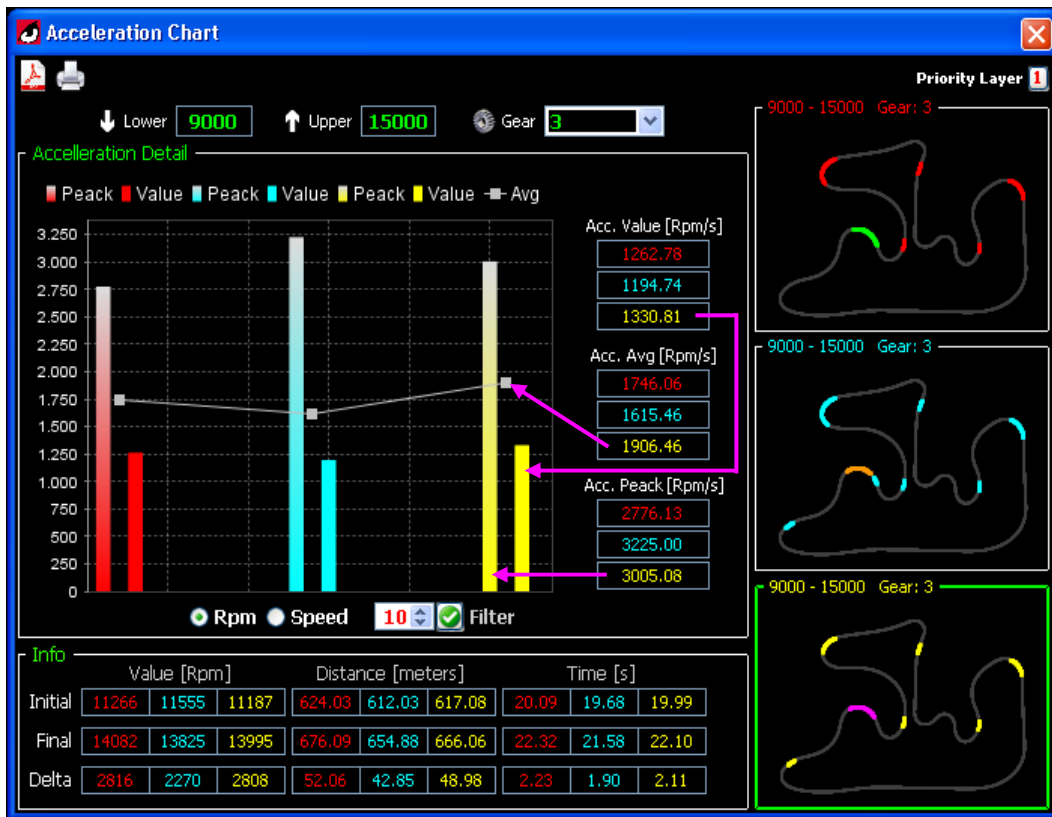


Illustration 38. Section Acceleration Chart of 3 selected laps

Section Sectors Table

The Section Partial Table provides precise information for each sector.

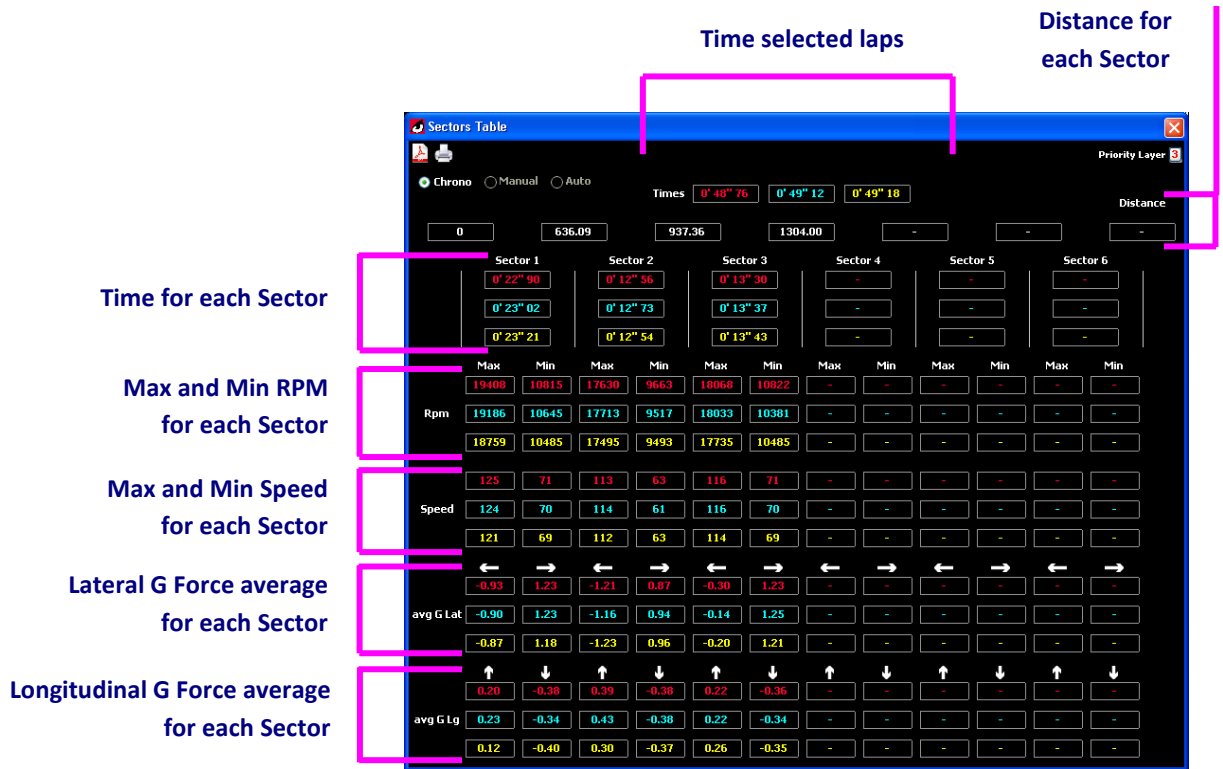


Illustration 39. Section Sectors Table

Section Rave Valve

The Section Rave Valve serves to the visualization of all information of opening/closing of the exhaust valve.

In top on the left of the section is the middle value of tours/min for the transaction of the valve, from closed to open.

In top on the right of the section is the middle value of tours/min for the transaction of the valve, from open to close.

In the center top part are information linked to the time (lasting) of the state of the valve, on the illustration 1, the valve remained open during 45% of the lap and therefore during 20.40" and for the rest of the time the valve was closed.

In the center of the section are on the other hand, in a detailed way, the information of all changes of state of the valve, as follows :

- Column that underlines the changes of state that seem the most meaningful (column 1)
- Number of progressive transaction (column 2)
- Motor Tours at the time of the opening of the valve (column 3)
- Instant of time during which the valve opens up (column 4)
- Lasting to the state of opening (column 5)
- Instant of time during which the valve closes itself (column 6)
- Motor Tours at the time of the closing of the valve (column 7)

S/D #	RPM	TIME	DELTA	TIME	RPM
	Close » Open	Open	Time	Close	Open » Close
1	9682	1.10	1.10	2.20	10123
2	9883	2.80	0.90	3.70	10987
3	9089	14.30	1.10	15.40	11018
4	10441	16.00	8.20	24.20	14124
5	13238	24.40	0.10	24.50	12795
6	9831	26.20	4.10	30.30	14168
7	9082	35.10	2.10	37.20	12627
8	10575	41.80	2.80	44.60	13799

Illustration 40. Representation of the section Rave Valve of 3 selected laps

Other buttons present in the toolbar :



Button “Center” is useful to change the present visualization of the different section windows while positioning them all in the center of the screen.



Button “General Setup” is useful to recall the window of compilation of the General Setup.



Button “Search update” is useful to search for new program updating, it allows to control if the installed version is well the last one available, and if it is not the case, to throw the automatic procedure permitting to get the last available release. We remind that this is a software in continuous development where comes to be constantly added new functions and where existing functions can be regularly improved.



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