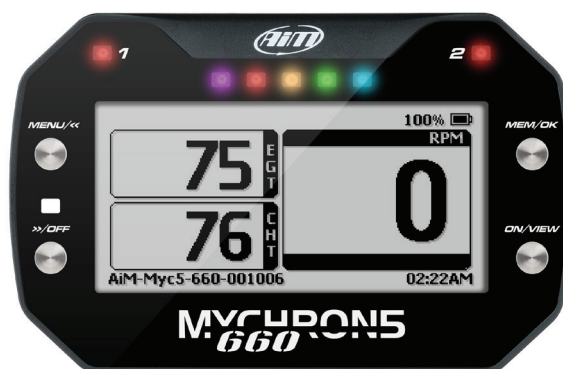


User Manual

MyChron5 660

Release 1.00





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1 – MyChron5 660 in a few words

MyChron5 660 is the new AiM system properly designed and developed for dragsters. It features:

- 1 speed input
- 2 temperature inputs for cylinder head and exhaust gas thermocouple
- 2 configurable alarm LEDs
- 5 RGB LEDs
- 4 Gb internal memory
- Lithium rechargeable battery

Which data does MyChron5 660 samples and records?

MyChron5 660 samples and records 50 times per second (50 Hz) Engine RPM, wheel speed in MPH (calculated by jackshaft, RPS and final jackshaft RPM). All data can be downloaded to a PC using RaceStudio3 (from Race Studio 3 3.39.00 onwards) and analysed through the new Race Studio Analysis 3 software (from 3.52.00 onwards), freely downloadable from www.aim-sportline.com sw/fw download section.

2 – What is in the kit

MyChron5 660 kit includes:

- MyChron5 660 (1)
- Dragster split cable (2)
- Phonic wheel kit (3) made up of Teflon™ and composed of two parts: an internal ring that includes 4 magnets and an external bushing that protects the internal ring. The external bushing is fixed to the internal ring using two hex screws.
- Magnetic wheel speed sensor with nuts (4) composed of a sensing end inside the brass threaded cylinder and a 10" (250mm) long cable
- Cylinder head thermocouple (5)
- Exhaust gas thermocouple (6)
- Battery and battery charger kit (7)



Each item can be bought separately as spare part with the following part numbers:

- Dragster split cable
- Phonic wheel kit for dragster
- Magnetic wheel speed sensor
- Cylinder head thermocouple
- Exhaust gas thermocouple
- MyChron5 660 battery
- Battery charger
- Charger kit USB cable (12V wall charger)
- Battery plugs:
 - USA plug
 - European plug
 - UK plug
 - Australian plug

V05CCB04MDR
DNKTRF660
XSMSNVB301
X05SOT14A4516MS
3CVGAS807
2BT18650TDM
XSMCABATM5
X90TMPC000

X06AHB070
X06AHB068
X06AHB069
X06AHB071



AiM can also supply an external power kit shown here below whose part number is:

X08HB2GK0

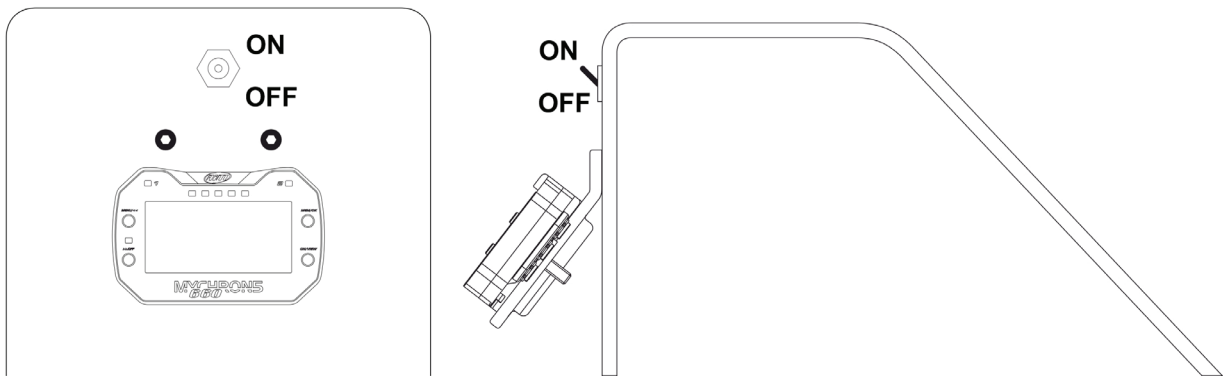


3 – Installation, connections and powering

Each item of the kit needs to be carefully installed, MyChron5 660 first. Incorrect installation may result in system malfunction.

3.1 – Installing MyChron5 660

MyChron5 660 allows the mechanics to set up the engine carburetion immediately before the race. For this reason it is important to install it in a place where the mechanics can see its display while working on the dragster engine. A commonly used position is the metal bulkhead which separates the racer's seat from the engine. AiM recommends to install MyChron5 660 under the kill switch.



As shown here above on the right the logger needs a bracket. Use an aluminium or steel self-made bracket 0.1" (2.5 mm) thick so to resist the vibration when the engine is on. Firmly fix the bracket to the vertical bulkhead and then fix MyChron5 660 to the bracket. Please be careful not to overtighten the mounting nut; this can cause damage to the display unit case.

3.2 – Installing the RPM wire

RPM wire needs to be connected to the dragster kill switch. The switch is in most cases a 2 poles (only few switches are 1 pole). The two poles are RPM and coil. RPM wire should be going to the coil side of the kill switch. Running it to the grounded side of the switch causes RPM signal to drop in and out and sometimes not to work at all. Being the kill switch opposite the bulkhead drill a 0.2" (5mm) hole inside the bulkhead and remember to insert the rubber wire-holder in the hole to protect RPM wire from tears and cuts.

3.3 – Installing Exhaust Gas thermocouple

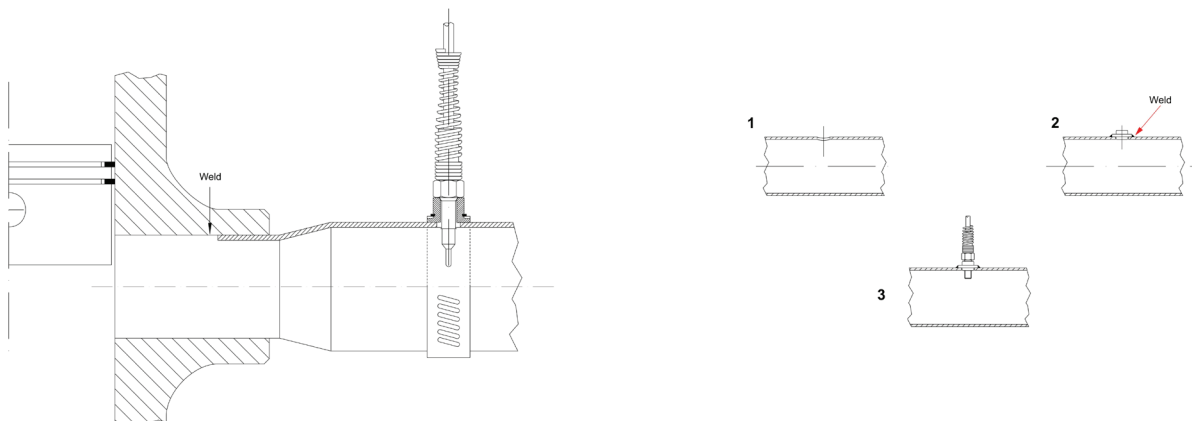
Install EGT (Exhaust Gas Thermocouple) inside the exhaust header pipe at a distance of approximately 5.9" (150 mm) from the exhaust port and between 25% and 50% inside the exhaust gas header. For a correct installation follow these steps:

- drill a 0.2" (5mm) hole inside the exhaust header
- fix the metal wrapper to the exhaust header pipe in the hole you have drilled; please remember: pipe hole and wrapper threaded must be coaxial
- screw EGT thermocouple in the wrapper nut and firmly fix it. Plug the thermocouple male Mignon connector to the EGT input wire of the "dragster split cable"

EGT thermocouple can also be installed using a steel adapter to be welded to the exhaust header following these steps:

- drill a 0.4" hole inside the exhaust header (1)
- weld EGT adapter inside the hole (2)
- screw the EGT thermocouple inside the EGT adapter (3)
- plug the EGT thermocouple male Mignon connector to the EGT input wire of the 2 temperatures split cable (part number **V02CCB04MDR**).

Here below is an EGT thermocouple installed on the right and an installation with steel adapter on the right.

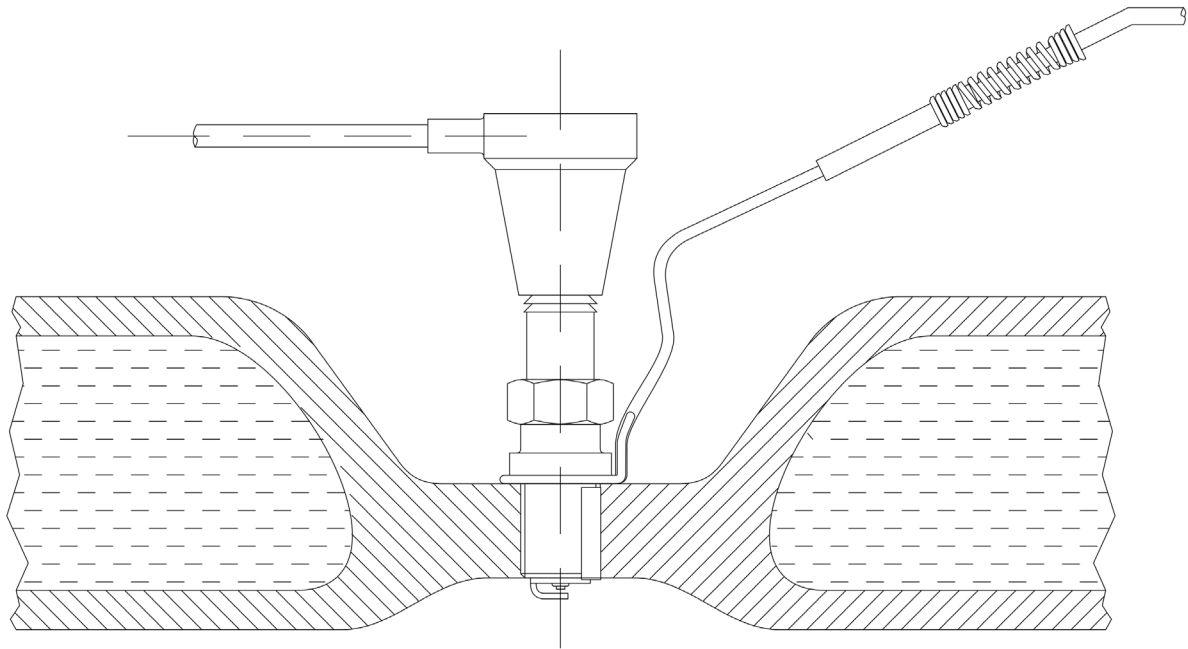


3.4 – Installing the Cylinder Heat Thermocouple

To install the cylinder head thermocouple:

- remove the spark plug washer
- insert the sensor
- tighten the sensor but be careful to minimise movement in order to avoid damages
- plug the thermocouple male Mignon connector to the sensor 2 temperatures split cable (part number **V02CCB04MDR**).

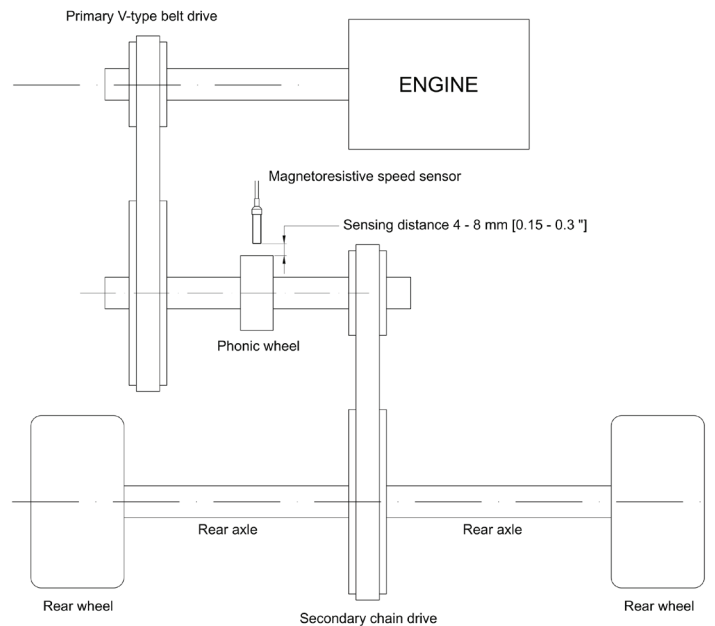
The image here below shows a cylinder head thermocouple correctly installed.



3.5 – Installing the speed sensor

To sample the dragster speed a magneto-resistive speed sensor (part number **XSMSNVB301**) is to be installed at a 4-8 mm distance from the phonic wheel (part number **DNKTRF660**) that is to be installed on the jackshaft (3/4" diameter) moved by the clutch. The movement of jackshaft and wheel are related to the crown/pinion ratio.

The scheme below shows the layout of the installation.



To correctly install the speed kit follow these steps:

- remove the pinion and insert the phonic wheel (internal diameter 3/4") on the jackshaft
- fix the phonic wheel to the jackshaft screwing the nut
- install the magneto-resistive speed sensor on a self-made bracket; please remember that sensing distance – the distance between the sensor and the phonic wheel – is to be 4-8mm (0.15"-0.3")
- plug the speed sensor male connector in the 4 pins Binder 712 female connector rear of MyChron5 660 highlighted here below.

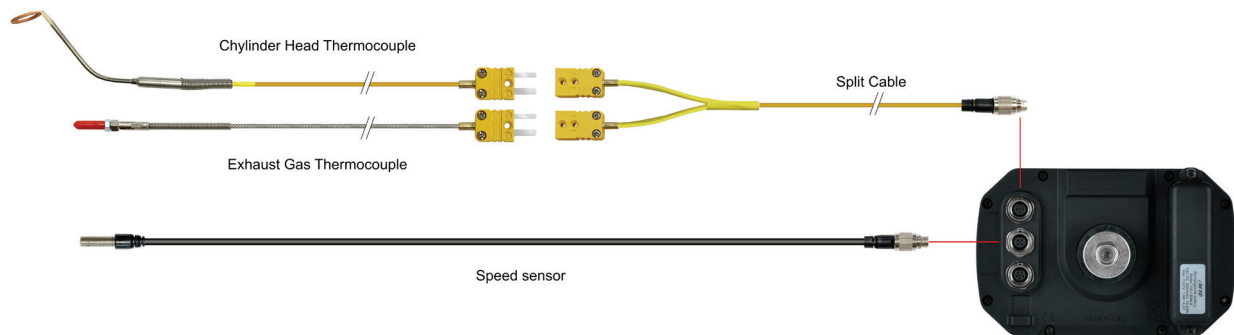


3.6 – Connecting MyChron5 660 to sensors

To connect MyChron5 660 to the temperature sensors included in the kit:

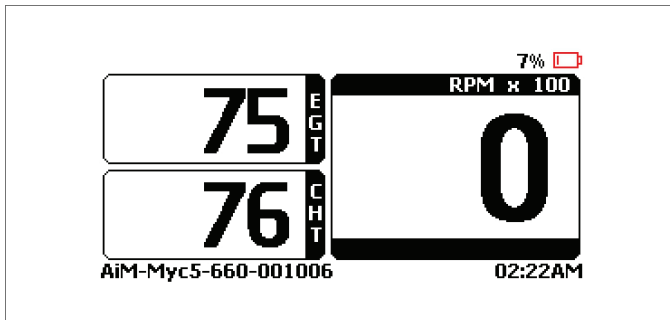
- connect the 7 pins Binder 712 male connector of the dragster split cable to the 7 pins Binder 712 female connector placed top rear of the logger
- connect exhaust gas temperature thermocouple mignon male connector to one of the two mignon female connector of the dragster split cable
- connect cylinder head temperature thermocouple mignon male connector to the other mignon female connector of the temperature split cable
- connect the 4 pins Binder 712 male connector of the speed sensor to the 4 pins Binder 712 female connector placed central rear of the logger

Here below is a complete connection scheme



3.7 – Powering MyChron5 660

MyChron5 660 is powered by a rechargeable lithium battery. When the battery level is low the corresponding icon blinks on the display (left image below) Disregarding this blinking can cause logger shut down during the race. Before shut down a warning message appears on the display.

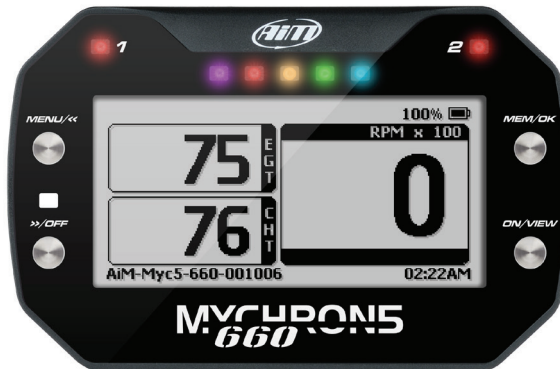


To recharge the battery remove it from the logger unscrewing the screws highlighted here above on the right, place it on the charger shown here below on the left. The charger has a green LED on the bottom (right image below) that blinks while charging the battery. When the battery is charged it becomes steady.



4 – MyChron5 660 keyboard and configuration

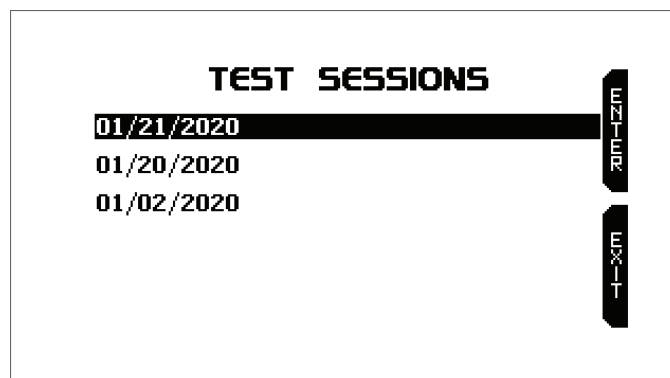
MyChron5 660 has 4 metal pushbuttons.



The pushbuttons are used to

- MENU/LESS:
 - enter configuration menu
 - scroll to the previous option
- >>/OFF:
 - scroll to the next option
 - switch MyChron5 660 off
- MEM/OK:
 - recall sampled data (image below)
 - confirm a choice
- ON/VIEW:
 - switch MyChron5 660 on
 - quit and save

Please note: MyChron5 660 has an auto power off features that switches it off after 10 minutes of inactivity.





4.1 – Configuration Wizard

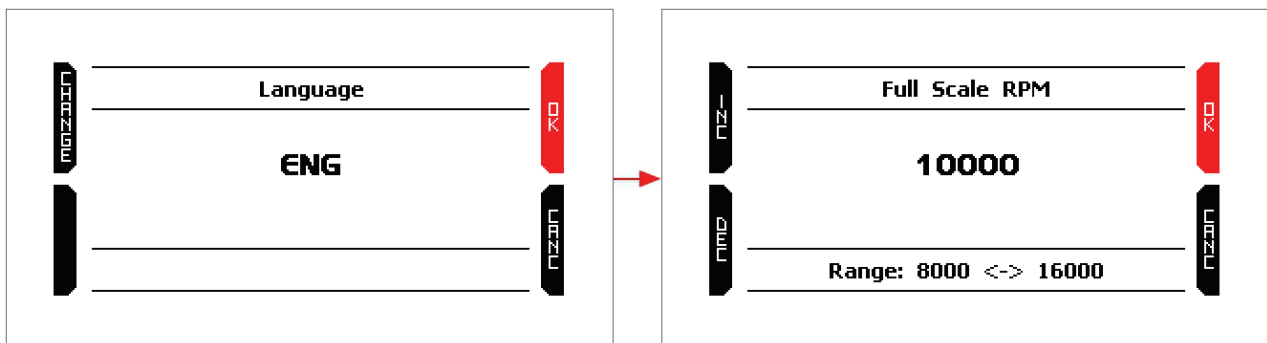
MyChron5 660 has a very useful configuration wizard that automatically activates when switching MyChron5 660 on for the very first time. It allows to quickly configure language and RPM scale.

Please note: it will start each time MyChron5 660 is switched on until completed at least once. Once completed it can be restarted scrolling the icons in “MENU” page and selecting the one shown here above. Images below show the sequence.

Use:

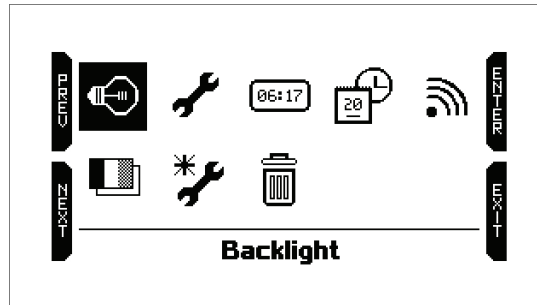
- “CHANGE” button to select the options
- “OK” button to scroll the pages.

Please refer to the single paragraphs to know which options are available for each function.



4.2 – Configuration Menu

All MyChron5 660 configuration option can be set via keyboard. Press “MENU/←” to enter the Menu and this page shows up.



The icons are for:



Setting MyChron5 660 backlight



Entering MyChron5 660 “System setting” menu



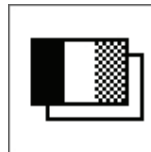
Setting MyChron5 660 Engine pass counters



Setting MyChron5 660 Date and Time



Setting MyChron5 660 Wi-Fi



Setting MyChron5 660 language



Entering MyChron5 660 Configuration Wizard (see paragraph 4.1)

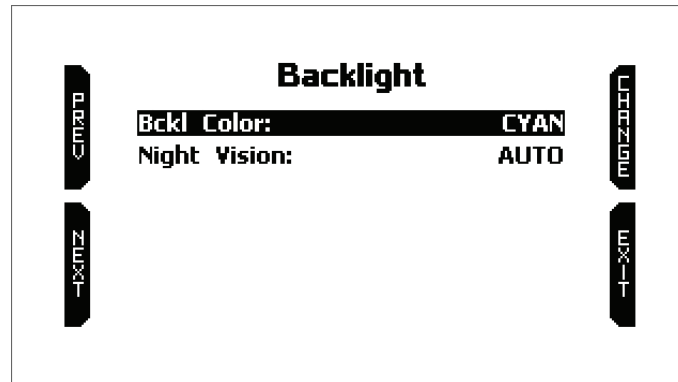


Clearing MyChron5 660 memory



4.2 – Backlight

To set MyChron5 660 backlight select the icon shown here above in “MENU” page and press “ENTER”.



Here it is possible to set:

- backlight colour; available options are:
 - Cyan
 - White
 - Purple
 - Red
 - Green
 - Yellow
 - Blue
 - Magenta
- night vision:
 - ON
 - OFF

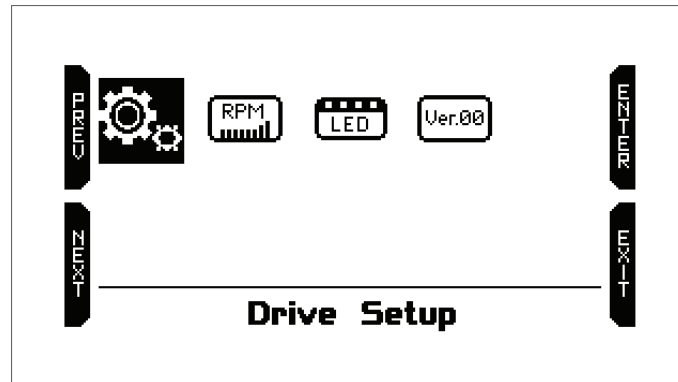
Use:

- “CHANGE” button to change the setting
- “PREV”/“NEXT” buttons to scroll the options
- “EXIT” to quit and save



4.3 – System Settings

To set MyChron5 660 main parameters select the icon shown here above in “MENU” page and press “ENTER”.



This menu allows to set the main functions of MyChron5 660 as well as to see the information of your MyChron5 660.



Drive Setup



RPM Setup



LED Setup



System Info



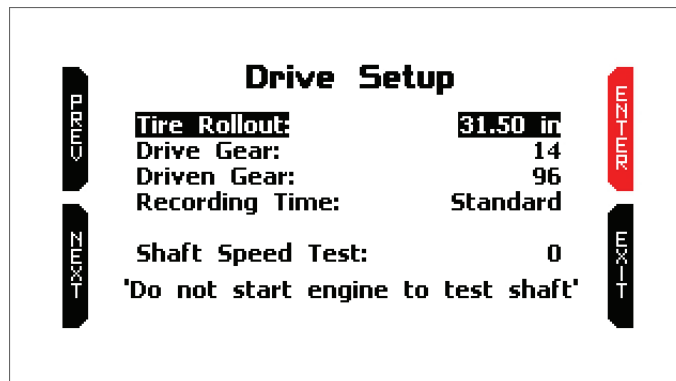
4.3.1 – Drive Setup

To set MyChron5 660 Drive select the icon shown here above in “System Setting” page and press “ENTER”. This page allows to setup the following parameters:

- Tire Rollout or wheel circumference (range 10.00-120.00 inches): this parameter is fundamental to correlate wheel angular speed and dragster speed
- Drive gear (pinion) teeth number (range 5-49; 14 by default)
- Driven Gear (crown) teeth number (5-199; 96 by default)
- Recording time: Standard or extended (minimum shaft standard 3500; minimum shaft extended 1500); with tall gearing in high index classes, extended recording time will assure that data at the beginning of the pass are not clipped.

Please note: do not start engine to test shaft or the system will exit this page.

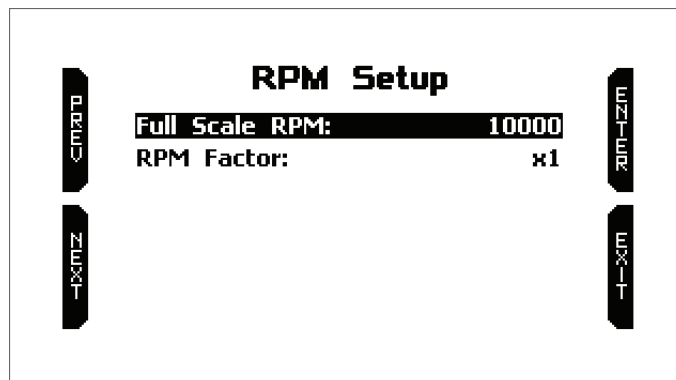
Use “ENTER” button to enter an option and set it



4.3.2 – RPM Setup

To set MyChron5 660 RPM select the icon shown here above in “System Setting” page and press “ENTER”. This page allows to setup the following parameters:

- Full scale RPM: range value: 8.000-16.000
- RPM Factor, available options:
 - x1
 - x2
 - /2



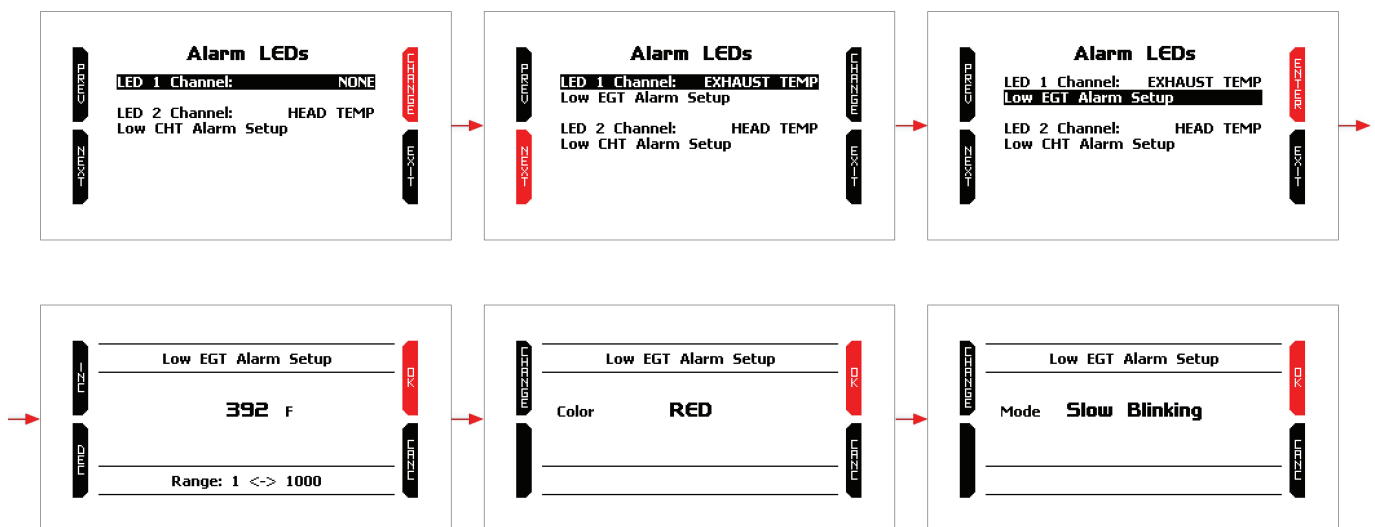


4.3.3 – LED Setup

To set MyChron5 660 LED select the icon shown here above in “System Setting” page and press “ENTER”. MyChron5 660 top LEDs can work as temperature alarm. To set them follow these steps:

- select the icon here above and press “ENTER”
- Default setting of LED 1 is NONE: press “CHANGE”
- The LED links to Exhaust Temp: press “NEXT”
- Low EGT Alarm Setup selects: press “ENTER”
- First setting is alarm threshold (range 1-1000 °F / 1-550° C)
- Second setting is LED Colour: available options are:
 - Red (as in the example)
 - Green
 - Yellow
 - Blue
 - Magenta
 - Cyan
 - White
- Select the desired option and press “OK”
- Third Setting is blinking frequency; available options are:
 - slow blinking (as in the example below)
 - fast blinking
 - continuously
- Select the desired option and press “OK”
- Repeat the operation for LED 2

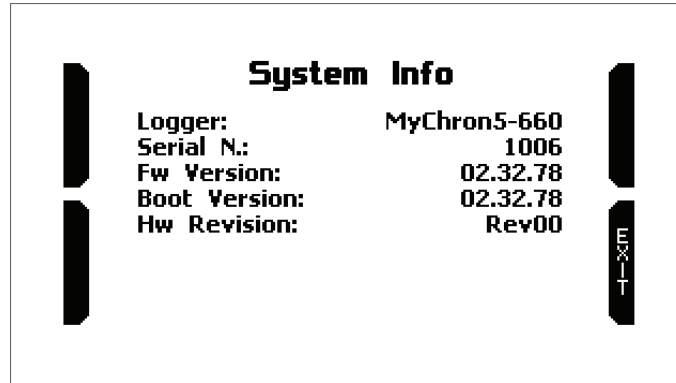
The image below shows the sequence of the pages as they are shown by MyChron5 660.



4.3.4 – System Info



To see MyChron5 660 information select the icon shown here above in “System Setting” page and press “ENTER”.



4.4 – Engine Pass Counters

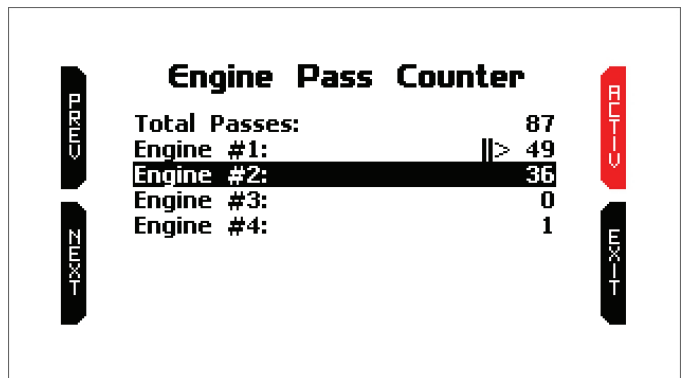
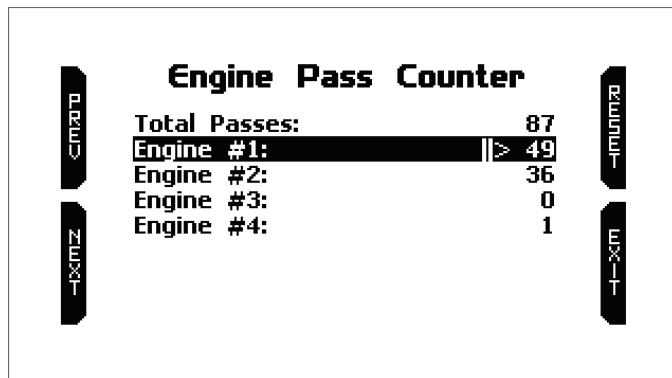


MyChron5 660 is equipped with 4 engine pass counter. To activate/reset any of them press the icon above in “MENU” page and the related page shows up.

The Engine pass counter active is indicated by an arrow (“Engine #1:... ||> 49” here below on the left). Press “RESET” to reset it.

To activate another engine pass counter:

- press “NEXT” and scroll all counters to reach the desired one
- press “ACTIV” to activate it.

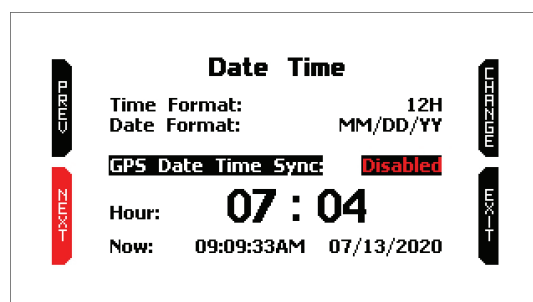
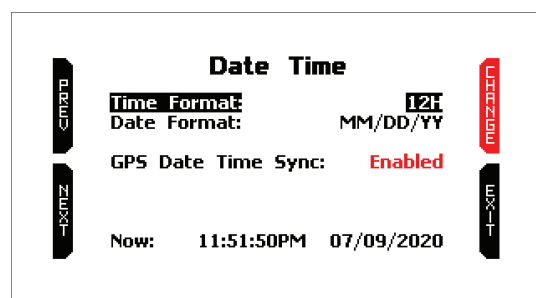




4.5 – Date time

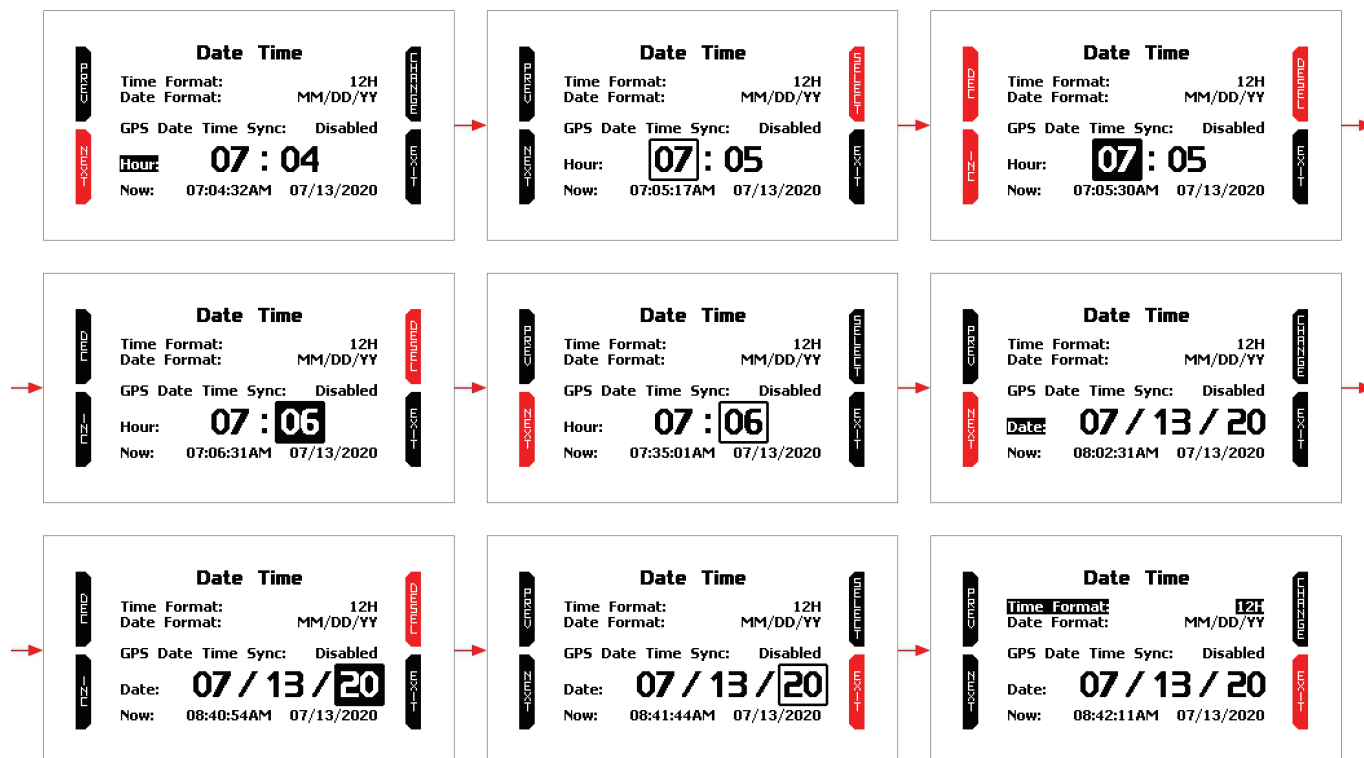
To set MyChron5 660 Date and time select the icon shown here above in “MENU” page and press “ENTER”. Here you can:

- set time format: 12H or 24H: press “CHANGE” to switch among the options and “NEXT” to switch to Date format setting
- set Date Format: MM/DD/YY or DD/MM/YY or YY/MM/DD: press “CHANGE” to switch among the options
- default setting for GPS time synchronization is “Enabled” (left image below), that means the time is automatically received from MyChron5 660 GPS. Use “CHANGE” button to disable the synchronization and set the time manually
- press “NEXT” button to start setting Time and date (right image below)



Now the system enters manual date/time setting procedure. With reference to the images below:

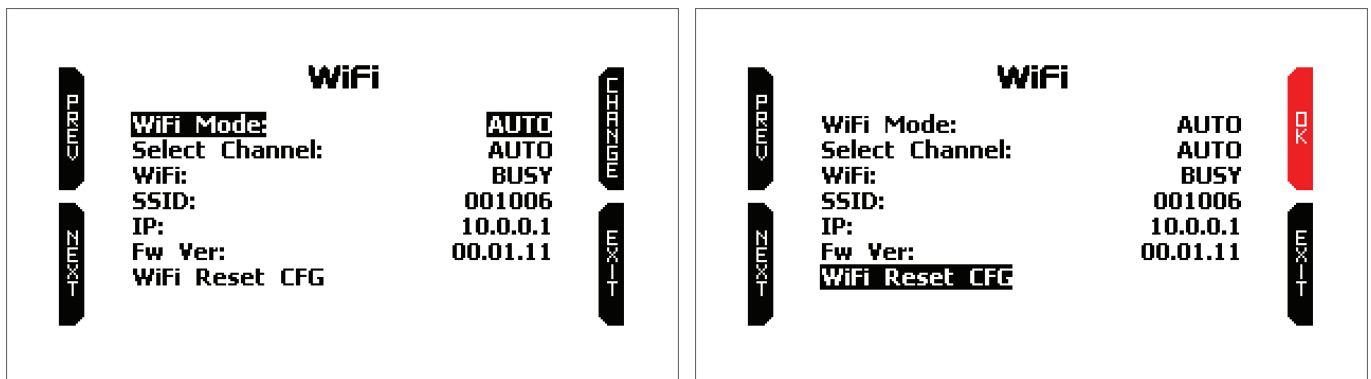
- press “NEXT” to switch to time option -> time is selected (07 squared below) -> press “SELECT” and time becomes settable (07 with black background top right here below) -> Use “DEC” and “INC” button to set the time ->
- press “DESEL” and “INC” button switches to “NEXT”: press it and you switch to minute option: set it
- press “DESEL” and then press “NEXT”: you come back to “Hour”: press “CHANGE” and it switches to “Date”: press “NEXT”
- set month, day and year (as for the set time format) and press “EXIT”; the system switches to “Time format”: press “EXIT” to save and quit





4.6 – Wi-Fi

To set MyChron5 660 Wi-Fi select the icon shown here above in “MENU” page and press “ENTER”. Here you can manage Wi-Fi as well as reset its configuration.



Wi-Fi modes are:

- Auto: switches Wi-Fi on when the vehicle is stopped and automatically switches it off when MyChron5 660 starts recording
- OFF: Wi-Fi always off

Select Channel; available channels are:

- AUTO (recommended)
- 1
- 6
- 11

“**Wi-Fi Reset CFG**” allows you to set via software and reset Wi-Fi configuration and is very useful if you do not remember the Wi-Fi password; press “OK” to reset Wi-Fi Configuration (right image here above).



4.7 – Language



To set MyChron5 660 Language select the icon shown here above in “MENU” page and press “ENTER”. At present available languages are (in this order):

- English
- Spanish

Use “CHANGE” button to scroll the options and “EXIT” button to quit and save.

4.8 – Configuration Wizard (see paragraph 4.1)



This function is the first one that activates when switching on MyChron5 660 for the very first time. See paragraph 4.1 to know how it works.

4.9 – Clear memory

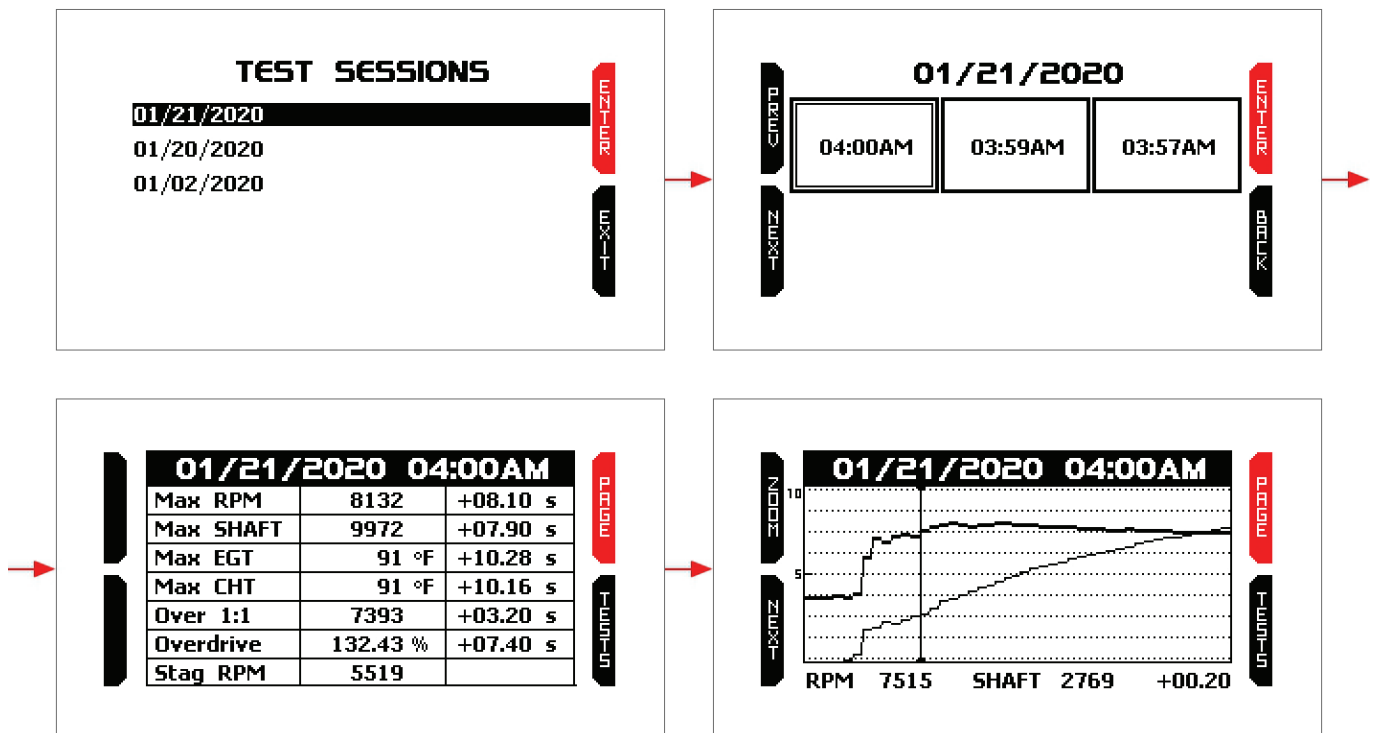


To clear all MyChron5 660 memory select the icon shown here above in “MENU” page and press “ENTER”. The system asks for confirmation.

5 – Data Recall

After a test session it is possible to recall sampled data pressing “MEM/OK”. Data recall is made up of four pages shown here below:

- Test Sessions (top left):
 - press ENTER to enter test summary
 - press “EXIT” to quit data recall
- Test Summary (top right):
 - use “PREV” and “NEXT” button to scroll the tests
 - press “ENTER” to see the values sampled during the selected test
 - press “BACK” to come back to test sessions summary page
- Selected test values (bottom left):
 - press “PAGE” to see the graph of the test
 - press “TESTS” to go back to test summary page
- Selected test graph (bottom right):
 - press “ZOOM” to zoom in/out the graph
 - press “NEXT” to move the cursor
 - press “PAGE” to switch among selected test values page and this page
 - press “TESTS” to come back to test summary



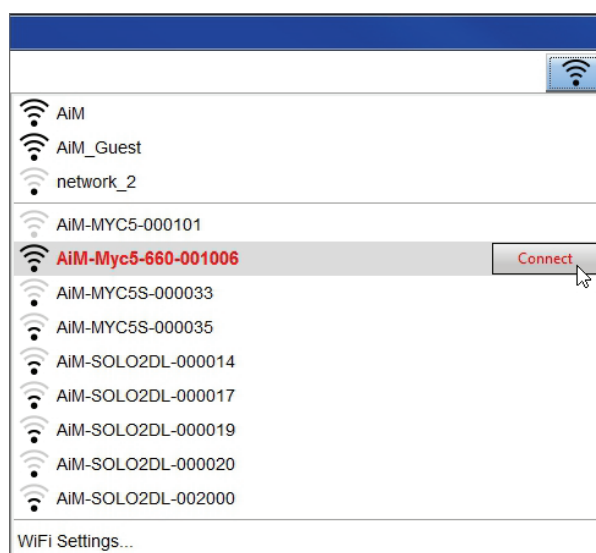
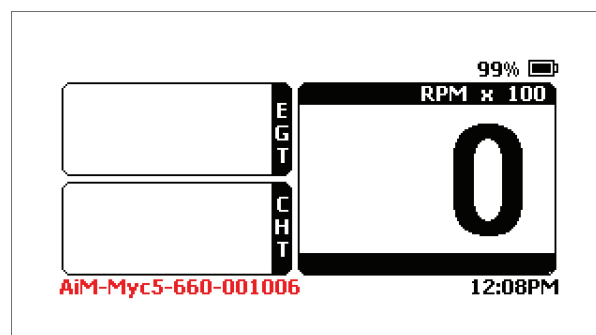
6 – Connection to the PC

You can connect MyChron5 660 to a PC **only** via Wi-Fi. To do it:


- check that MyChron5 660 Wi-Fi is set on “AUTO” (paragraph 4.6) or on “ON”
- read your MyChron5 660 name – bottom of MyChron5 660 home page (AiM-Myc5-660-001006 here on the right) – or look for it in “System Information” page.

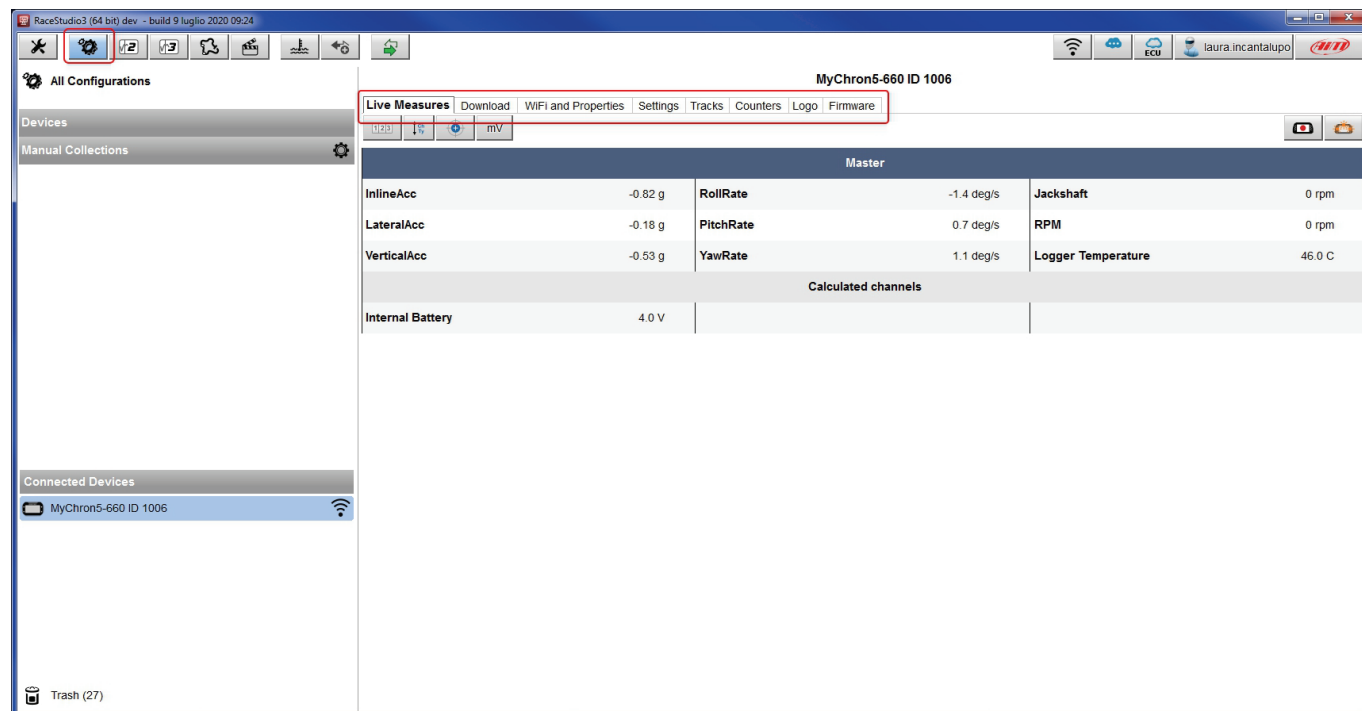
- click RaceStudio3 Wi-Fi icon and select your MyChron5 660. After a few moments the connection is established.

Please remember: Race studio 3 software supports MyChron5 660 starting from Race Studio 3 3.XX.XX



Once MyChron5 660 connected to RaceStudio3 it is possible to enter the software device window. To do so:

- click on “Configurations” icon () left of the software top keyboard then
- click MyChron5 660 that appears bottom left of the software window under “Connected devices” label.

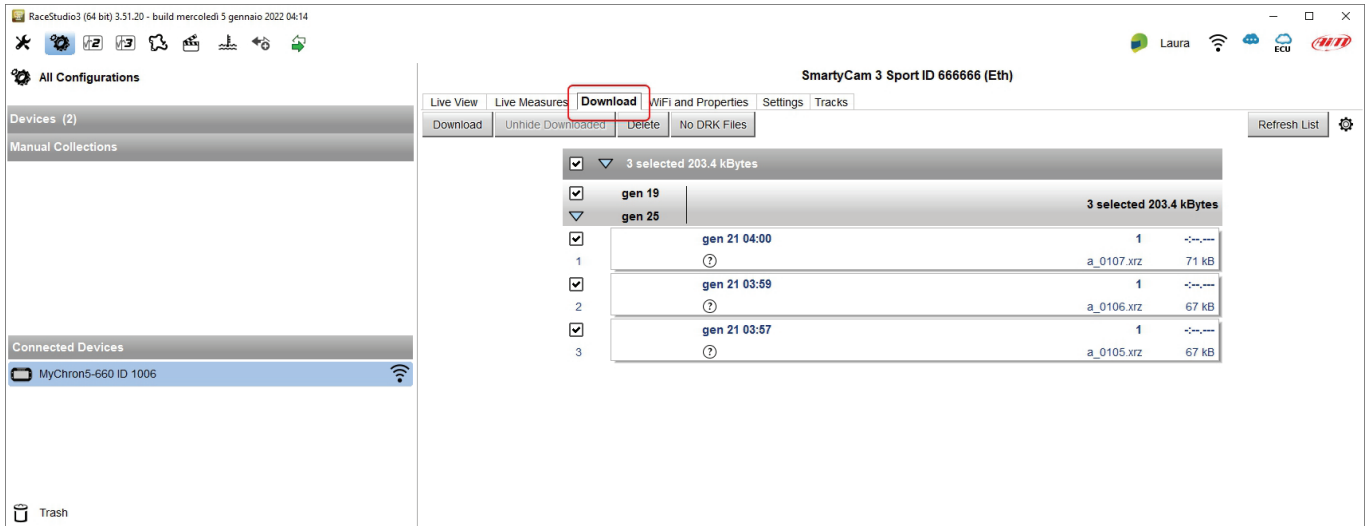


Device Window (shown here above) is made up of eight layers:

- **Live Measures:** to check all MyChron5 660 channels;
- **Download:** to download data, see chapter 7;
- **Wi-Fi and Properties:** to manage the Wi-Fi configuration – see chapter 8;
- **Settings** to:
 - set time and date format
 - set backlight colour
- **Tracks:** it shows all tracks stored in MyChron5 660; the logger is shipped with all known dragster strips at the moment of shipment stored in
- **Counters:** to reset the four engine pass counters as well as name them; to name a counter double click on “Engine #x” and the cell becomes editable
- **Logo:** transmit/receive the logo that shows up when switching MyChron5 660 on; supported image format are JPEG or BMP; always use the most recent Windows™ versions whose graphic libraries are more updated
- **Firmware:** to check or update MyChron5 660 firmware version.

7 – Data download and Analysis

Once MyChron5 660-PC connection is established activate “Download” tab to download sampled data.



This page shows all the files stored in the system available for download. Select one or more files and press “Download” to download and analyse them.

AiM RaceStudio3 analysis software offers specific features properly designed and developed for Jr dragster. To run it click the corresponding icon on the software top left keyboard.



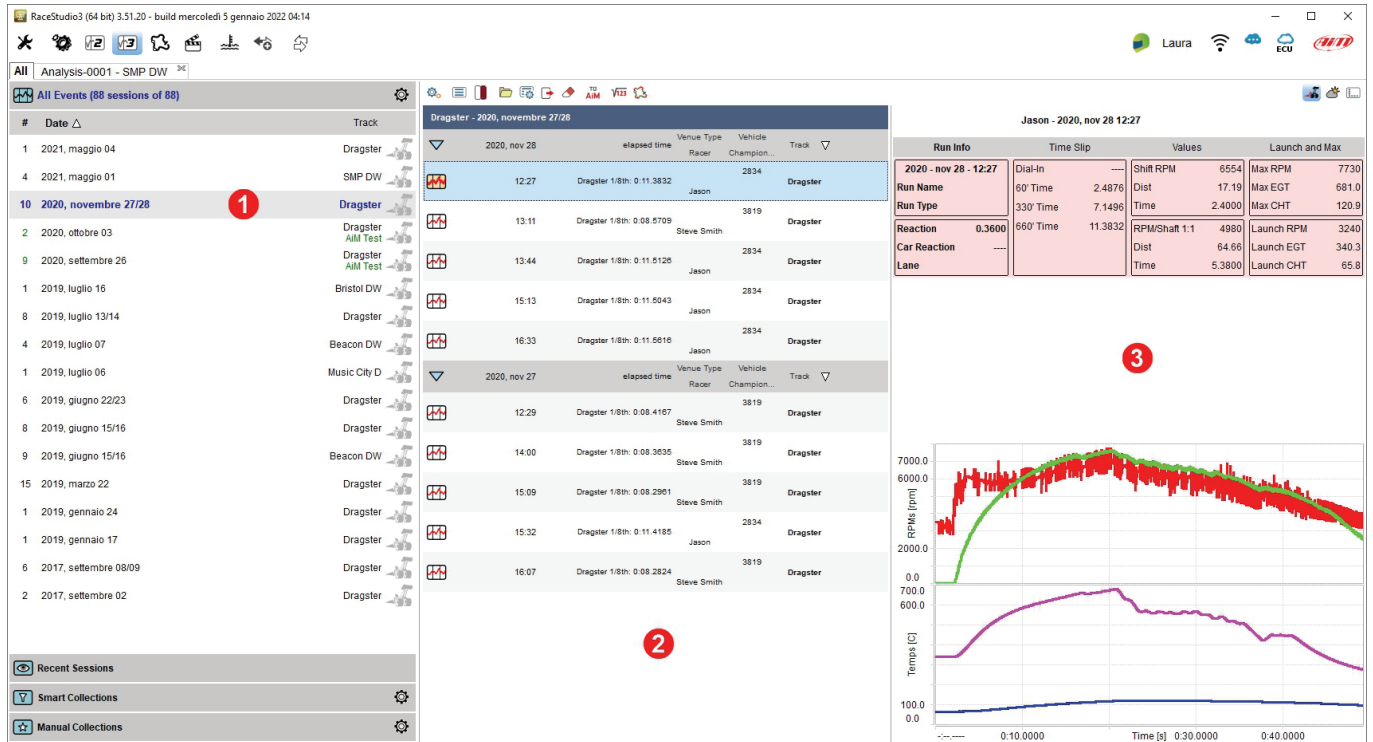
This user manual will only explain these software features that fits Jr dragster data analysis.

As far as all general software characteristics are concerned, please refer to RaceStudio3 Analysis user manual you can freely download from AiM website at www.aim-sportline.com -> documentation area -> Firmware/Software section.



User Guide

Once the software run its home page is prompted.



The page is made up of three columns:

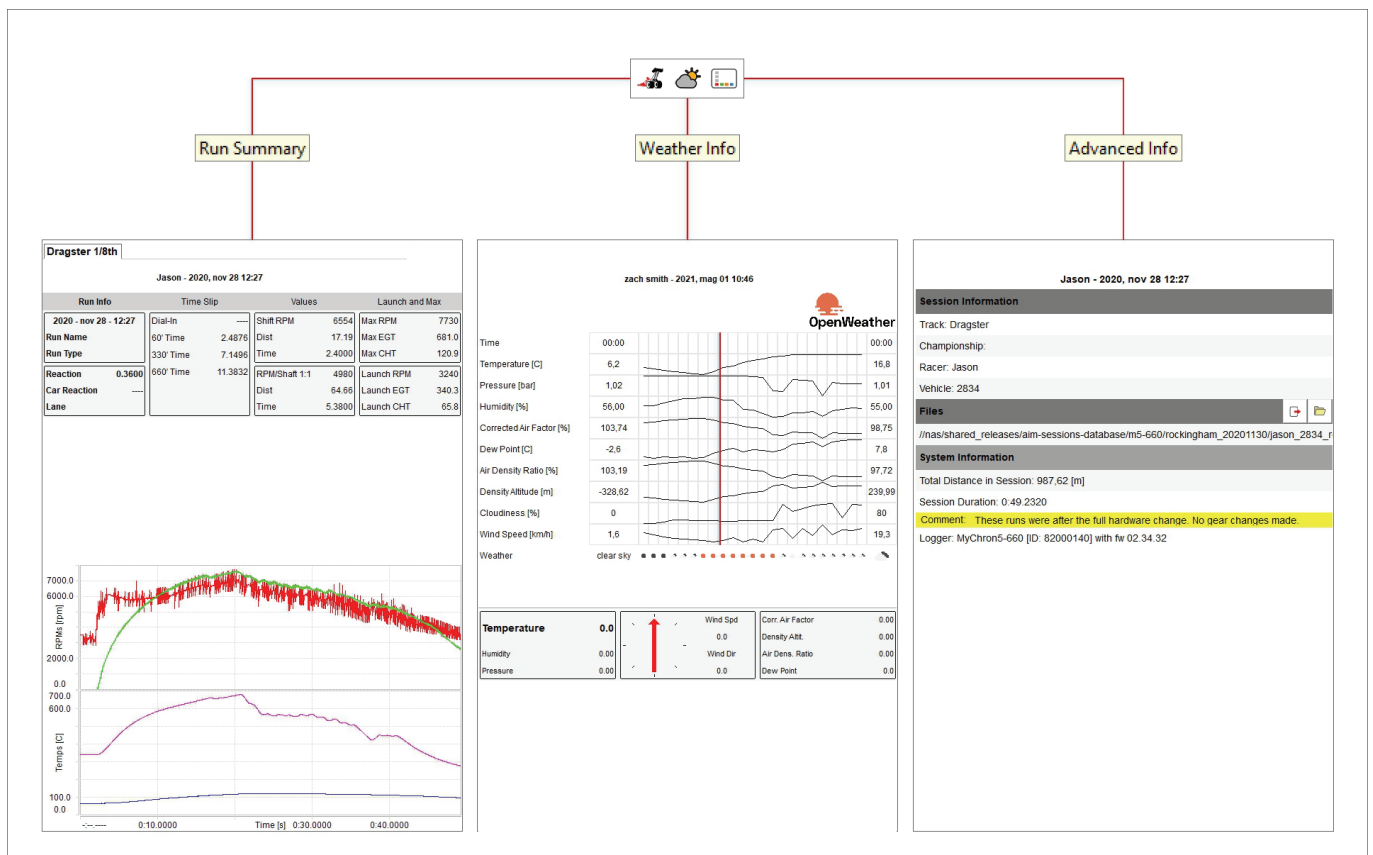
- all available sessions (1)
- data of the selected session (2)
- selected race data preview (3)

7.1 – Selected Race data preview

Data preview of the selected session changes according to the key pressed on the keyboard placed right of the page straight above the data and highlighted in red here below.



The image below shows the three pages in data preview section.





User Guide

Run Summary page shows a table on top.



Run Info	Time Slip	Values	Launch and Max
2020 - nov 28 - 12:27	Dial-In ----	Shift RPM 6554	Max RPM 7730
Run Name	60' Time 2.4876	Dist 17.19	Max EGT 681.0
Run Type	330' Time 7.1496	Time 2.4000	Max CHT 120.9
Reaction 0.3600	660' Time 11.3832	RPM / Shaft 1:1 4980	Launch RPM 3240
Car Reaction ----		Dist 64.66	Launch EGT 340.3
Lane		Time 5.3800	Launch CHT 65.8

All boxes can be set clicking on it and modifying the setting panel that is prompted.

Run Info	Time Slip	Values	Launch and Max
2020 - nov 28 - 12:27	Dial-In ----	Shift RPM 6554	Max RPM 7730
Run Name	60' Time 0.3600	Dist 17.19	Max EGT 681.0
Run Type	330' Time 0.3600	Time 2.4000	Max CHT 120.9
Reaction 0.3600	660' Time 0.3600	RPM / Shaft 1:1 4980	Launch RPM 3240
Car Reaction 0.3600		Dist 64.66	Launch EGT 340.3
Lane		Time 5.3800	Launch CHT 65.8

Run Info

Event date

Run type

☐ Time trial
☐ Qualification
☐ Elimination

Run name

Drive gear teeth

14

Driven gear teeth

96

Wheel

1524

Comments

OK

Cancel

Run Performance

Time of Day

Lane

☐ Left ☐ Right

Dial In Time

Reaction Time

0.3600

60' Time

2.4876

2.4876 [7.1496]

330' Time [60' to 330']

7.1496

7.1496 [11.3832]

1/8th Time [330' to 660']

11.3832

330' Speed

0.0

660' Speed

0.0

Shift RPM

6554

Shift RPM Distance

17.19

Shift RPM Time

2.4000

RPM / Shaft 1:1

4980

RPM / Shaft 1:1 Distance

64.66

RPM / Shaft 1:1 Time

5.3800

Car Reaction Time

0.3600

Comments

OK

Cancel

Launch and Max

Readings

Max RPM

7730

Max Cylinder Head Temperature

120.9

Max Exhaust Temperature

681.0

Comments

Launch

RPM

3240

Cylinder Head Temperature

65.8

Exhaust Temperature

340.3

Tire Pressure

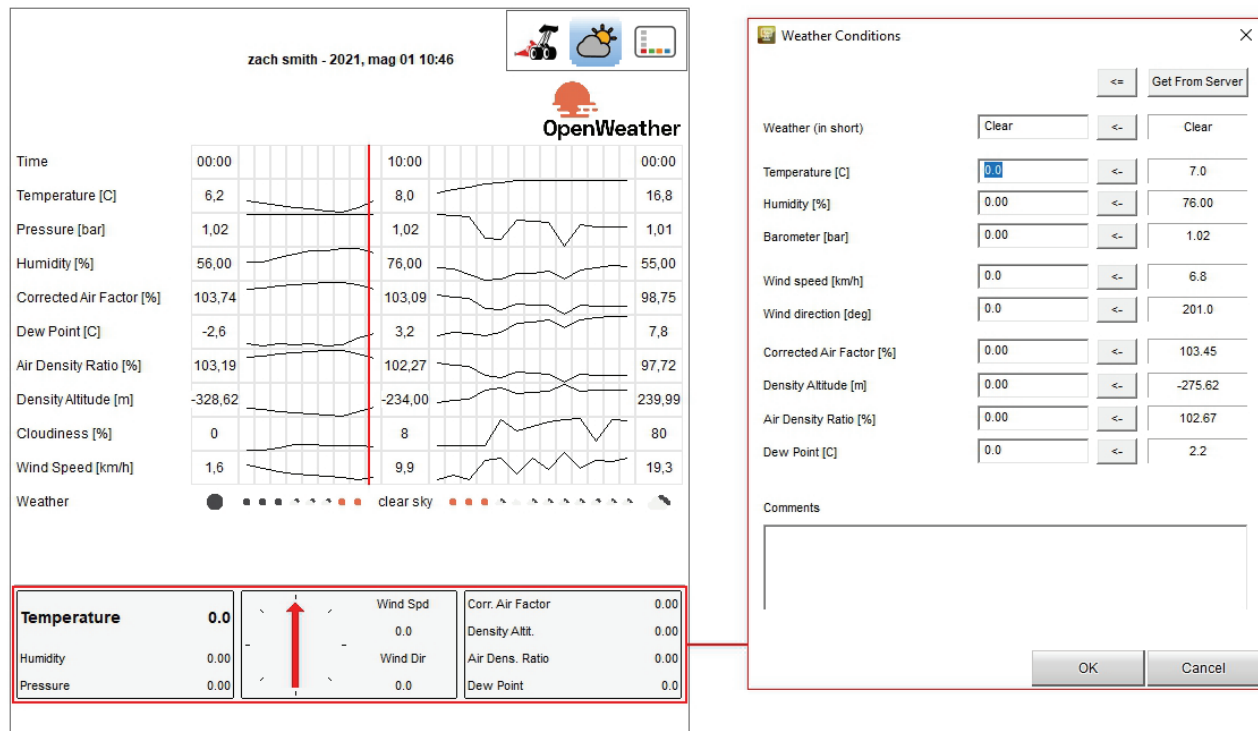
Comments

OK

Cancel

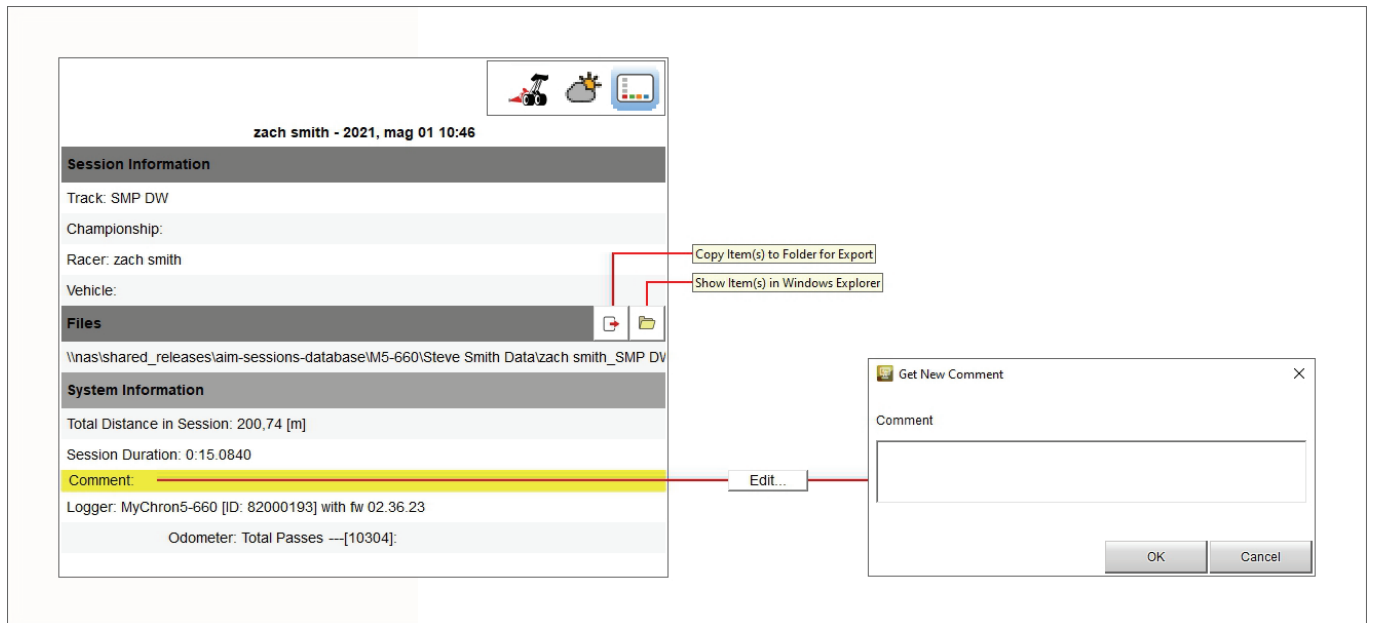
Under the table RPM and temperature vs time graphs are shown.

Clicking **"Weather Info"** icon all info concerning the weather condition during the race are shown. Clicking on any of the boxes below the table you can modify the weather conditions supplied by Open Weather.





Clicking “Advanced Info” all additional information about the race are shown.
User can export or show in Windows explorer the file using the proper buttons.
To add any comment to the file hover “Comment” on the yellow line and it switches to “Edit” button: click it and fill in the panel that is prompted.

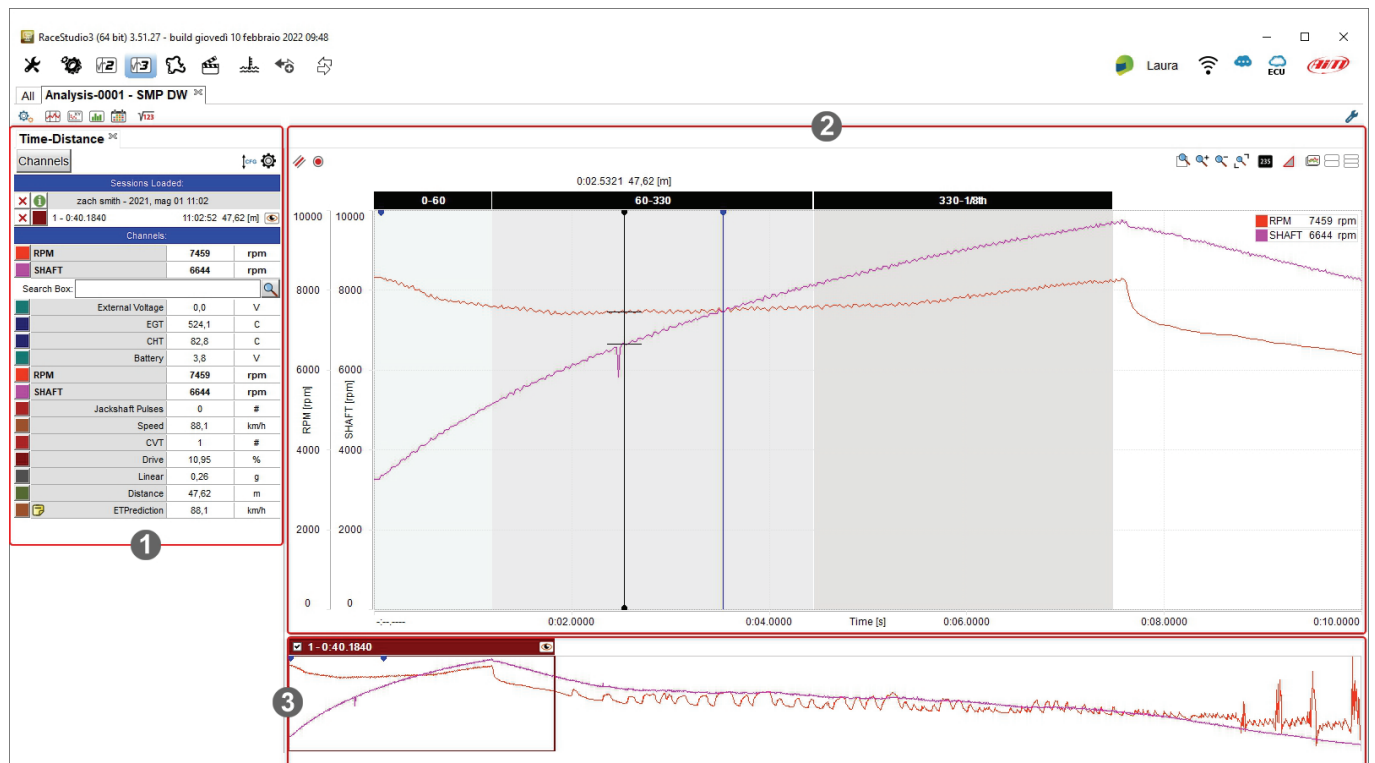


7.2 – Data analysis layout

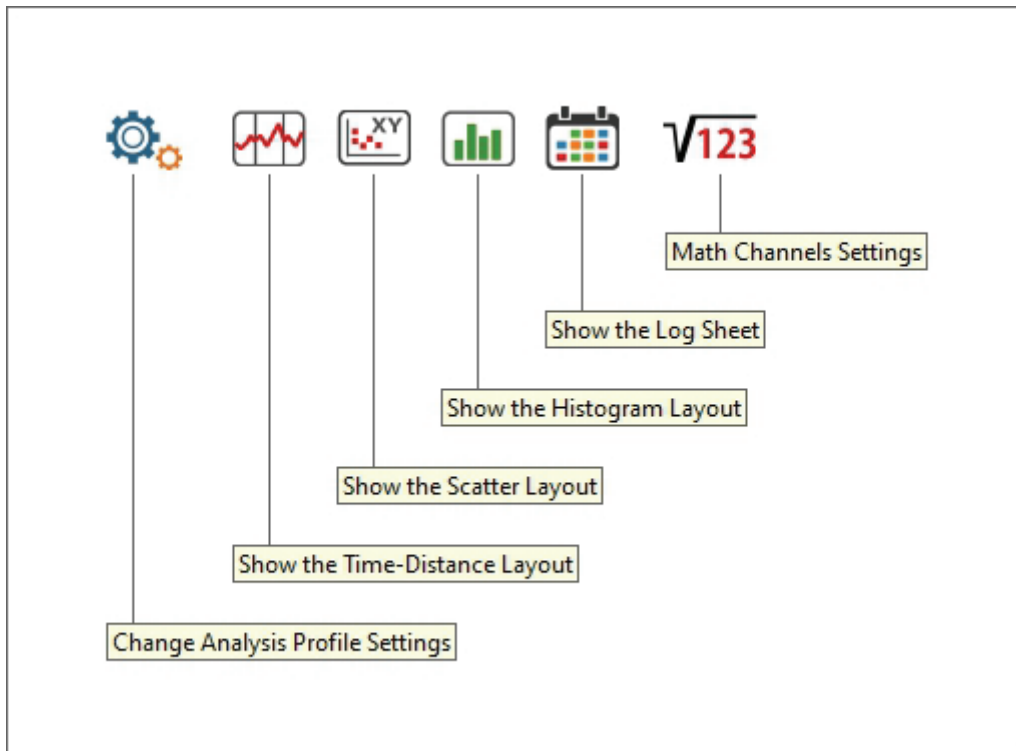
Double clicking on the selected race the software enters data Analysis layout. This page is made up of three part:

- channels table (1)
- graph (2)
- storyboard (3)

Each part of the layout is explained in the following paragraphs.



Central in the software page is the graph of the race. It changes according to the buttons pressed on the Top left keyboard shown here below.



Channels table

With reference to the image below, top right of the view is a keyboard that allows you to:

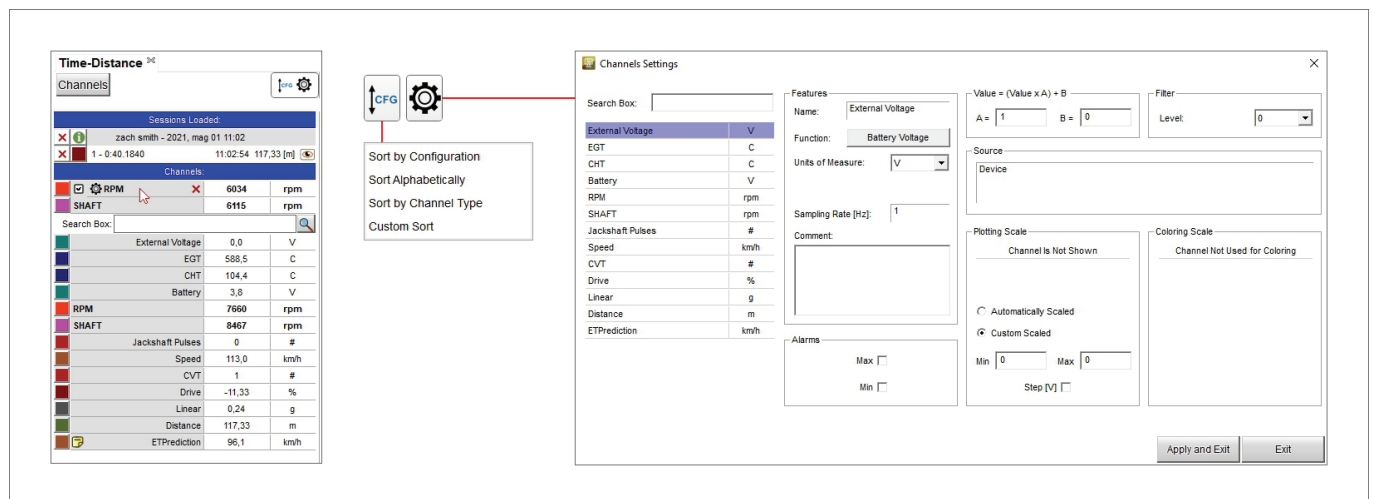
- change the order of the channels shown; they can be listed as managed by the firmware (sort by configuration), alphabetically or by channel type
- set the channels recalling the related dialog window

On top, under the label **"Sessions Loaded"** you see the sessions currently open.

Under the label **"Channels"** are the channels plotted in the central graph (by default RPM and SHAFT), a search box (indicated by the magnifying lens) and bottom of it all the available channels.

Mousing over any of the channel plotted in the graph an enabled checkbox, a setting icon and a red cross appear on the corresponding row. The red cross is to delete the channel from the central graph while the setting icon allows to set it and recalls the related dialog window. The difference between this recall and the one performed pressing the top right keyboard is that in this case the channel you are setting is already selected. Mousing over any of the channels not plotted in the central graph only the setting icon appears.

Each channel can be shown with different line colours that can be changed clicking the coloured box left of each channel.



The screenshot displays the 'Time-Distance' software interface. On the left, the 'Channels' table lists various channels with their current values and units. A search box is located below the table. On the right, the 'Channels Settings' dialog is open, showing configuration options for a selected channel (External Voltage).

Channels Table:

Channel	Value	Unit
External Voltage	0,0	V
EGT	588,5	C
CHT	104,4	C
Battery	3,8	V
RPM	7660	rpm
SHAFT	8467	rpm
Jackshaft Pulses	0	#
Speed	113,0	km/h
CVT	1	#
Drive	-11,33	%
Linear	0,24	g
Distance	117,33	m
ETPrediction	96,1	km/h

Channels Settings Dialog:

- Search Box:** [Empty]
- Features:**
 - Name: External Voltage
 - Function: Battery Voltage
 - Units of Measure: V
 - Sampling Rate [Hz]: 1
 - Comment: [Empty]
- Alarms:**
 - Max: []
 - Min: []
- Value = (Value x A) + B:**
 - A = 1, B = 0
 - Filter Level: 0
- Source:** Device
- Plotting Scale:**
 - Channel Is Not Shown
 - Automatically Scaled
 - Custom Scaled: Min 0, Max 0, Step [V] []
- Coloring Scale:** Channel Not Used for Coloring
- Buttons:** Apply and Exit, Exit

A red arrow points from the 'CFG' icon in the top right of the Channels table to the 'Channels Settings' dialog.



7.2.1 – Central graph in Time-Distance layout

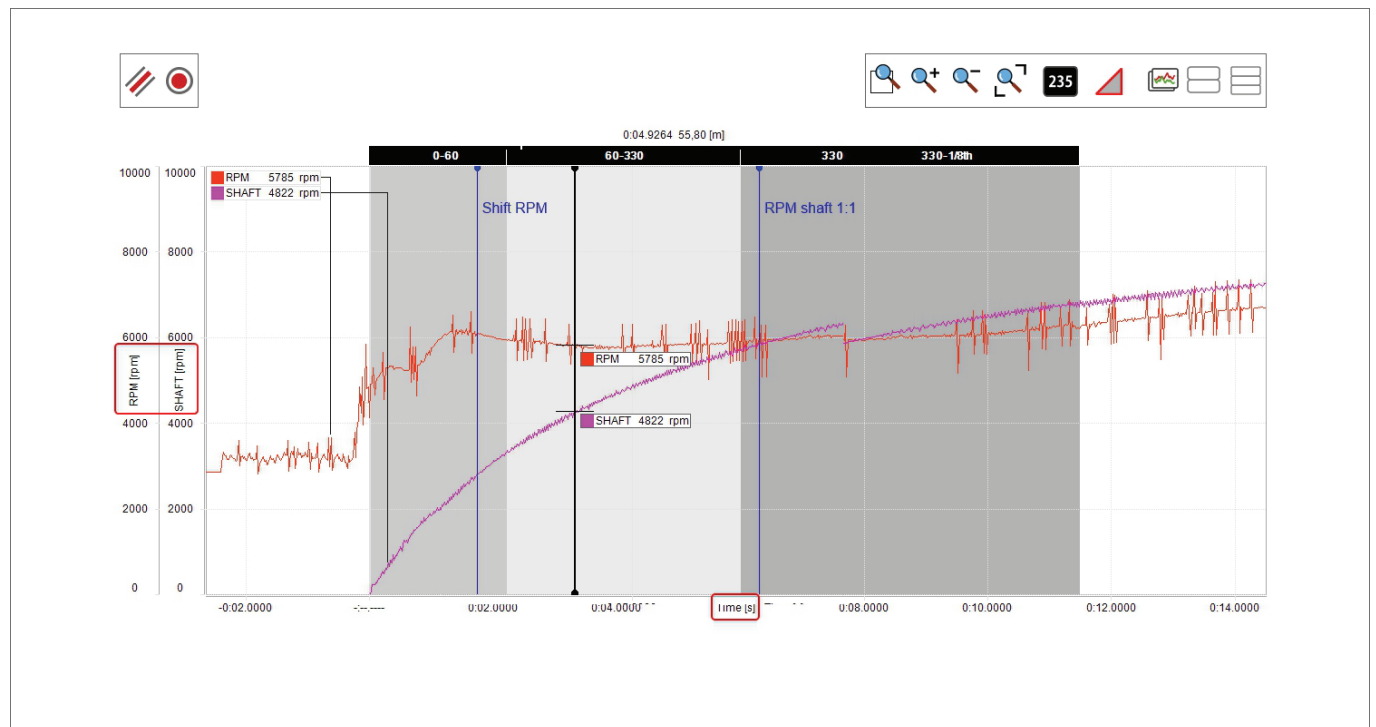
Top of the graph are two keyboard we will deepen in the following page. The graph shows:

- RPM and Shaft on the ordinate axle
- Time on the abscissa axle

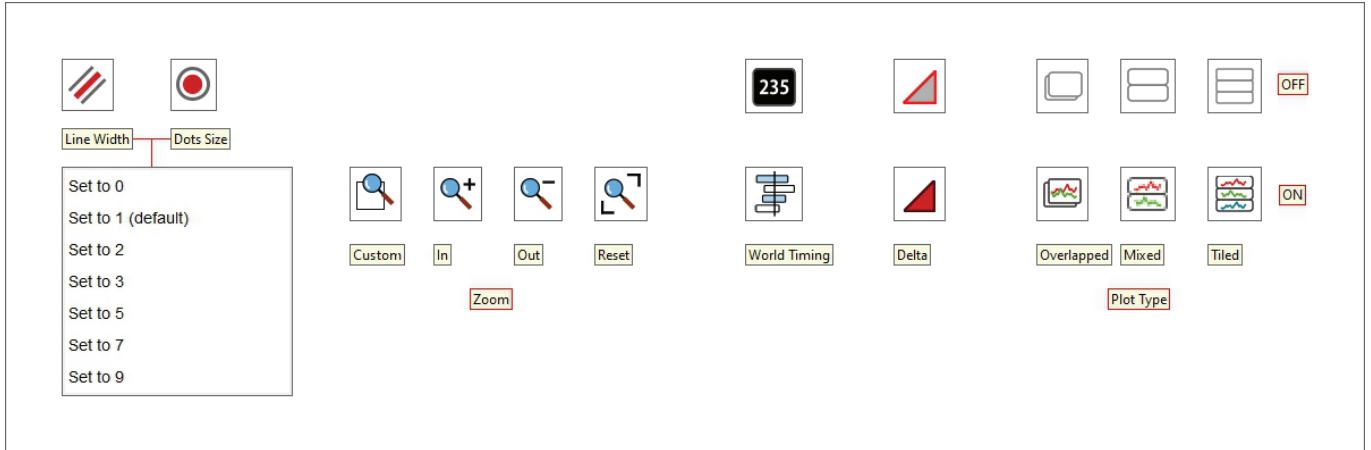
The graph shows different slices with different background corresponding to the three part of the race :

- 0-60
- 60-330
- 330-1/8

RPM and shaft graphs are shown in different colours and two blue cursors indicates Shift RPM (left one) and RPM shaft (right one). The black cursor shown centrally in the graph here below indicates RPM and Shaft values in that point.



The top keyboards buttons switch on/off when required as shown here below.



Here follow a short explanation of the different options activated by the buttons.

Zoom:

- Custom zoom ON: dragging and dropping the graph cursor you define the time period/run distance to zoom
- The other icons allow to zoom in/out the graph and reset the zoom

World Timing (useful to show different pilots in the same race):

- ON: allows both time and distance on the abscissa axis; shows the selected time period in the storyboard and can be modified using the mouse wheel
- OFF: allows only "Time" on the abscissa axis; shows the selected time period in the storyboard and can be modified using the mouse wheel

Delta ON: dragging and dropping the graph cursor the calculated time period/run distance is shown top left of the graph

Plot Type:

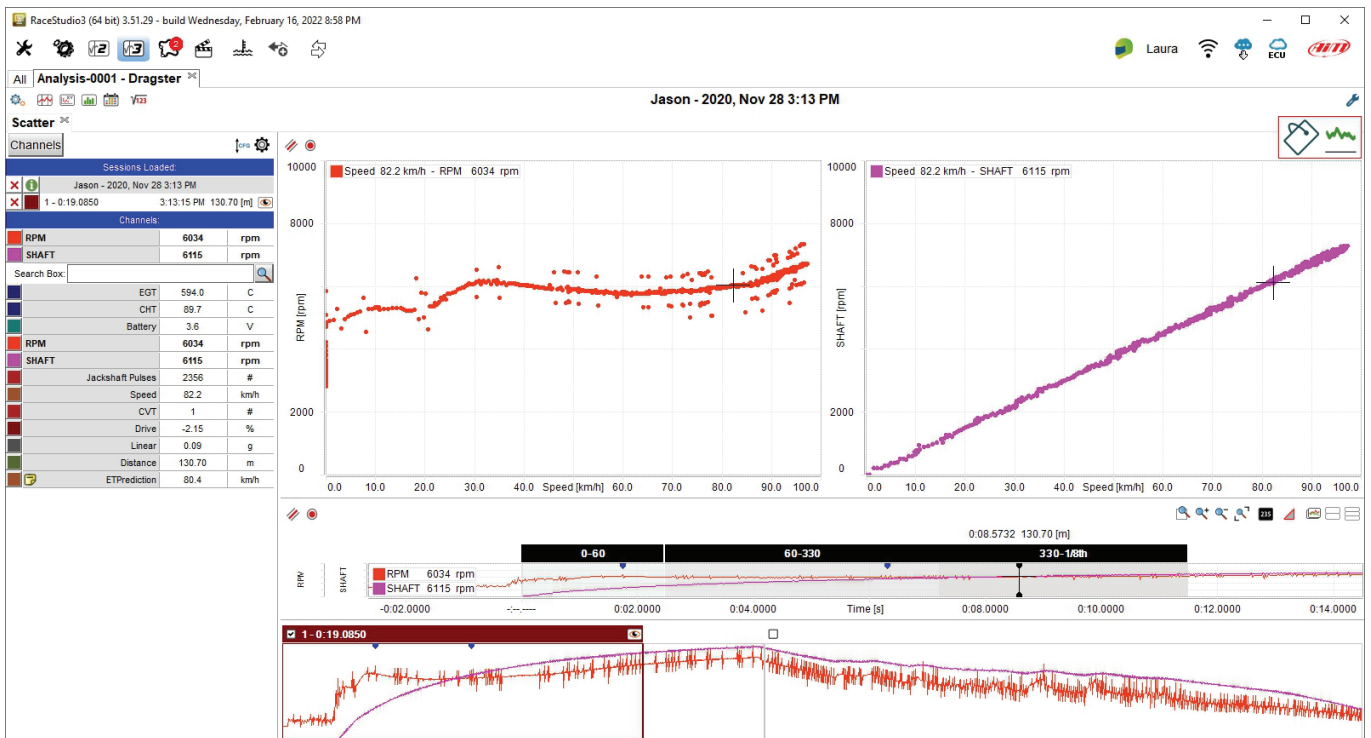
- Overlapped: all shown channels are shown in the same graph
- Mixed: you can decide which channel to show in which graph; a numbered box appears left of each shown channel in the channels table; clicking it you can decide in which graph to show that channel; max allowed number of graphs is 6
- Tiled: each channel has its own graph



7.2.2 – Central graph in scatter layout

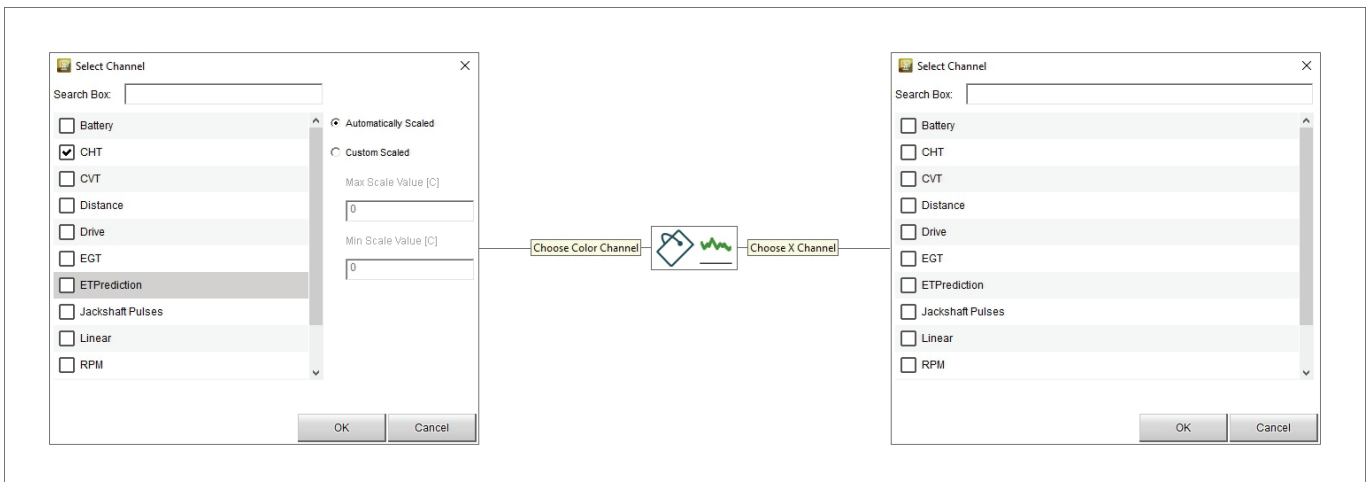
Pressing the icon shown here above on the right you enter “Scatter” layout. It shows:

- central: scatter graphs with each channel in a separate graph identified by the colour of the graph that is the same of the channel in channels table
- below it distance graph of each channel.; clicking on the scatter graph the cursor in distance graph goes to the corresponding point
- bottom the storyboard

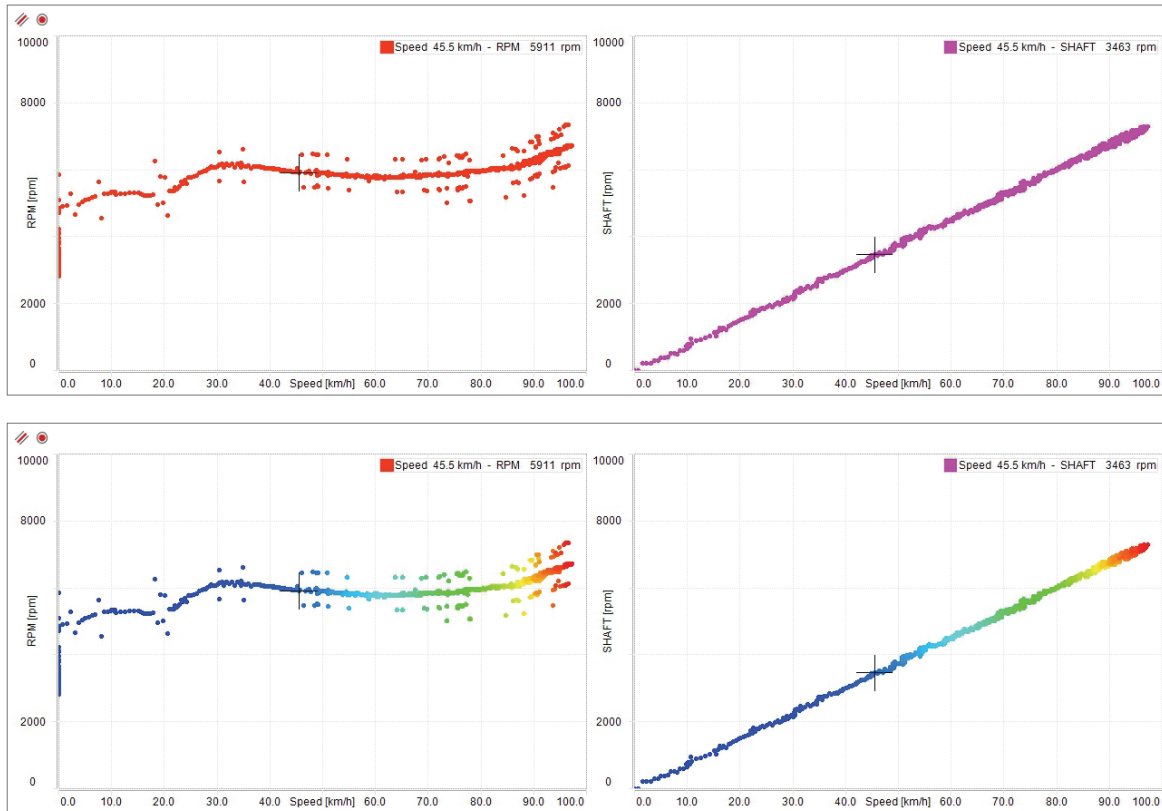


Top right of the scatter graphs is a keyboard shown here below used to:

- Choose colour channel: this function allows you to connect the values of the channels in the graphs to a third value – also not shown in the graph – using colours gradient (from blue for low value to red for high value); in the example the third channel is CHT
- Choose X Channel.



Using, for instance CHT as third channel here below you see the graphs with and without colour channel.





7.2.3 – Central graph in histogram layout

Pressing the icon shown here above on the top left keyboard of the view you enter “Histogram” layout. It shows:










- the histogram graph central
- below it time graph
- bottom the storyboard.

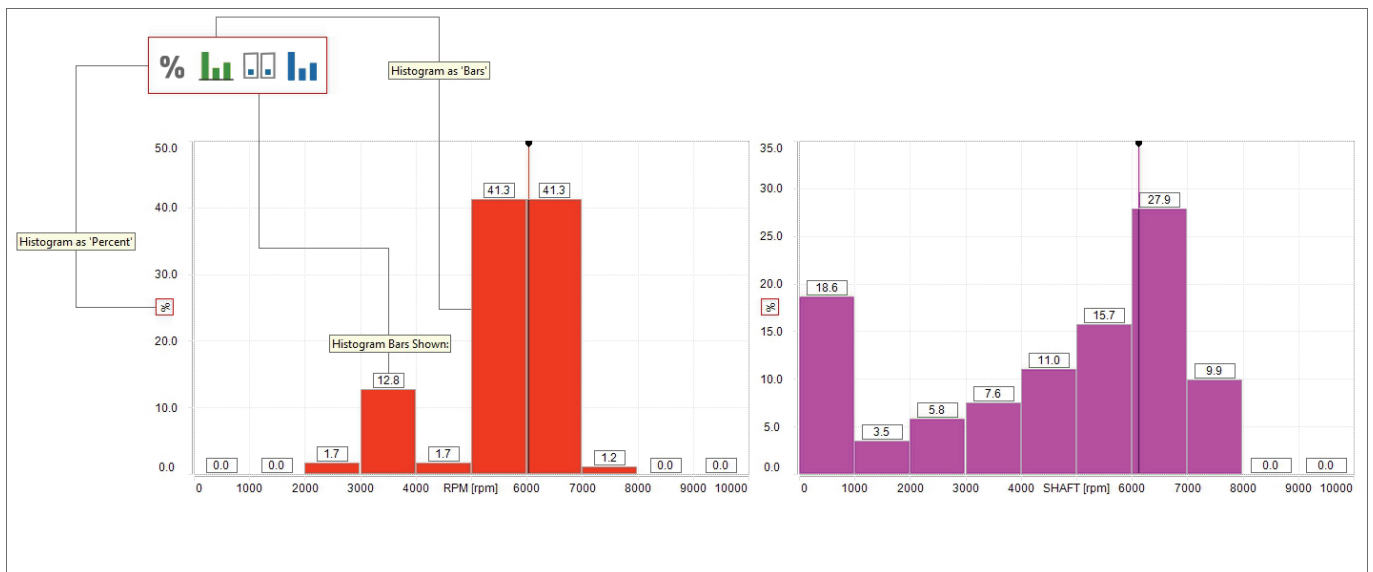
The graph layout changes according to the button you press on the top left keyboard.





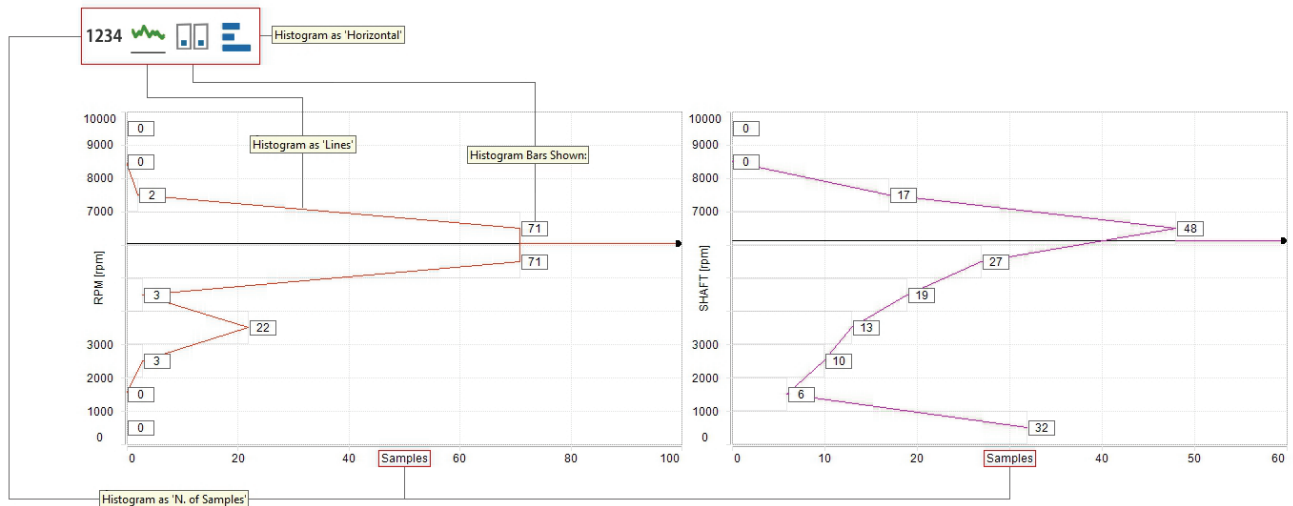
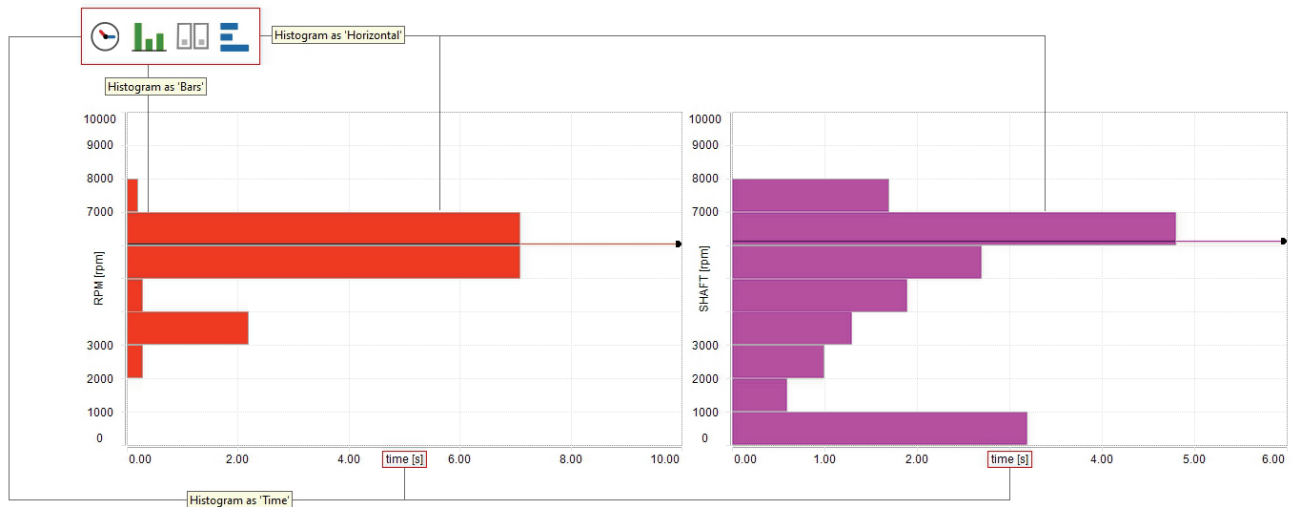
The image below shows all the buttons the keyboard is made up of and in the following images the main combinations are shown.

			
Histogram Displayed as 'Percent'	Histogram Shown as 'Bars'	Histogram Bars are Hidden	Histogram Displayed as 'Vertical'
			
Histogram Displayed as 'Time'	Histogram Shown as 'Lines'	Histogram Bars are Shown	Histogram Displayed as 'Horizontal'
			
Histogram Displayed as 'N. of Samples'			





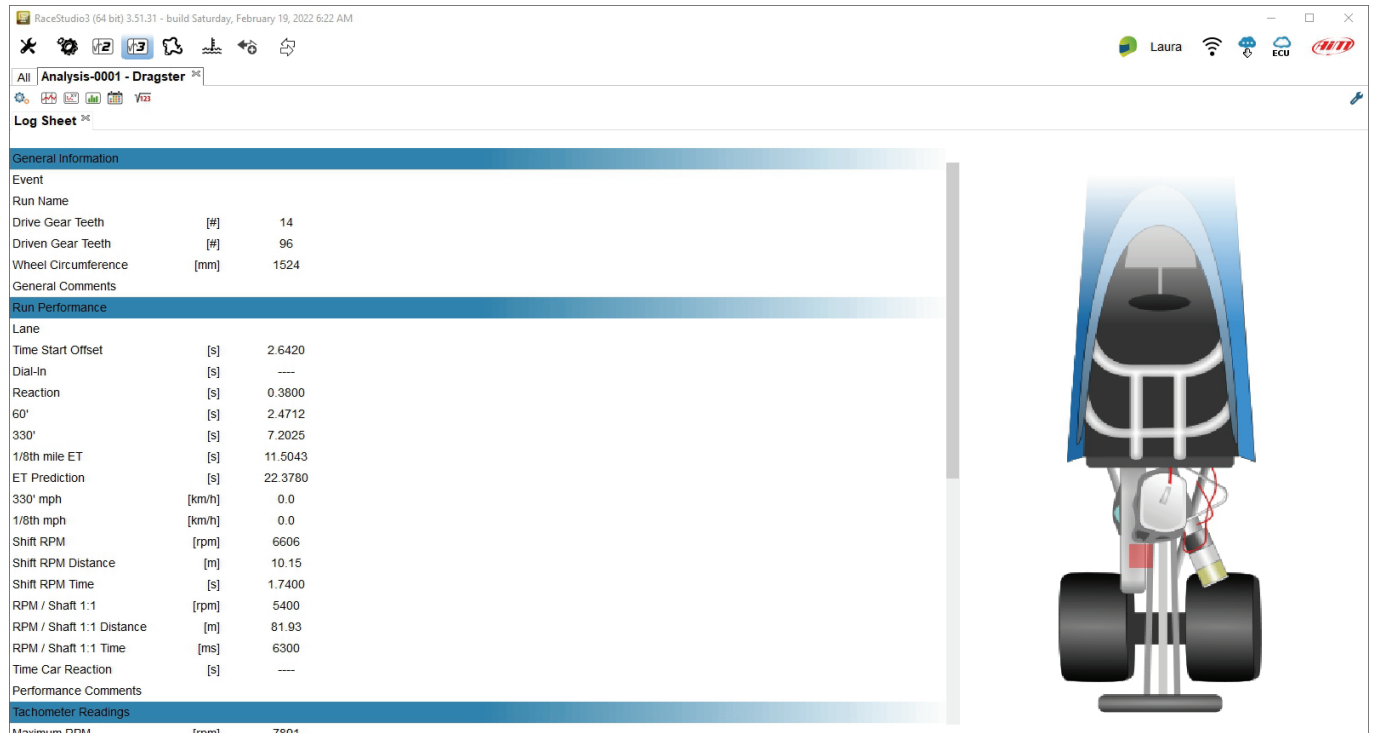
User Guide





7.2.4 – Set up and session information sheet

Pressing the icon shown here above on the top left keyboard of the view you enter “Log sheet” view. It shows all information concerning the session, the vehicle and the weather. It is made up of five parts shown in the following images.



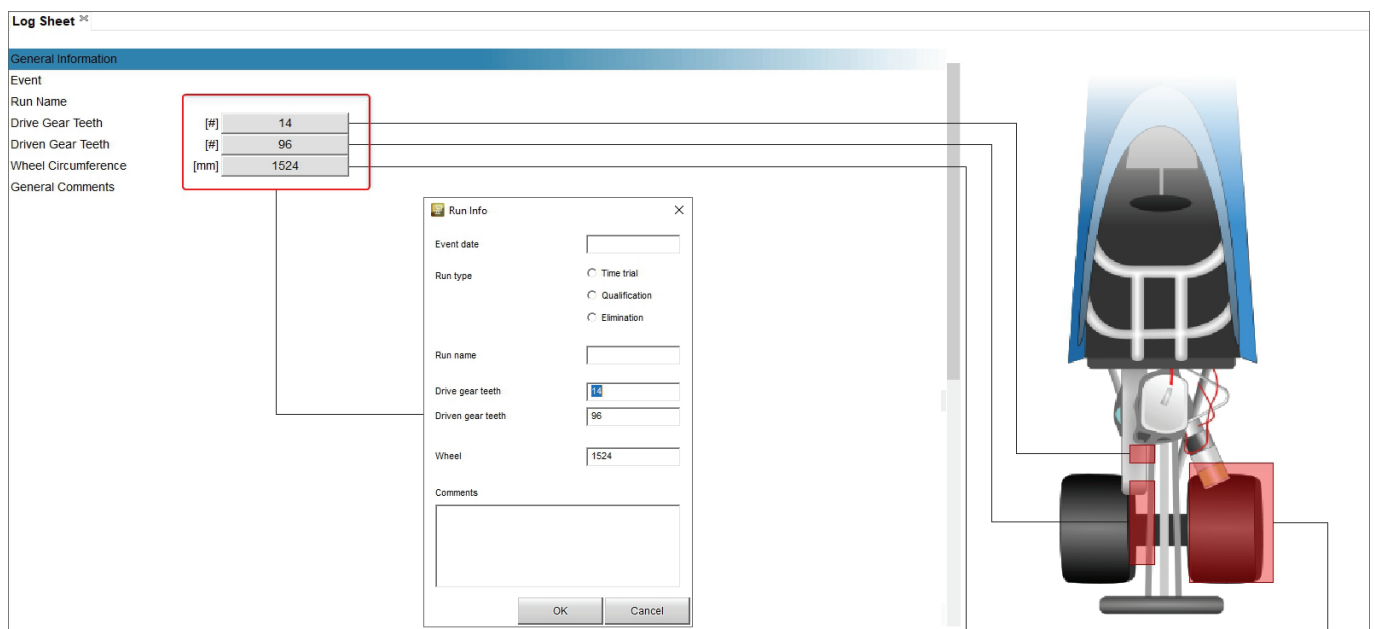
The screenshot shows the RaceStudio3 interface with the Log Sheet view active. The window title is "RaceStudio3 (64 bit) 3.51.31 - build Saturday, February 19, 2022 6:22 AM". The top bar shows the user "Laura" and various connection icons. The Log Sheet view is divided into three main sections:

- General Information:**
 - Event
 - Run Name
 - Drive Gear Teeth: [14]
 - Driven Gear Teeth: [96]
 - Wheel Circumference: [1524]
 - General Comments
- Run Performance:**
 - Lane
 - Time Start Offset: [2.6420]
 - Dial-In: [---]
 - Reaction: [0.3800]
 - 60': [2.4712]
 - 330': [7.2025]
 - 1/8th mile ET: [11.5043]
 - ET Prediction: [22.3780]
 - 330' mph: [0.0]
 - 1/8th mph: [0.0]
 - Shift RPM: [6606]
 - Shift RPM Distance: [10.15]
 - Shift RPM Time: [1.7400]
 - RPM / Shaft 1:1: [5400]
 - RPM / Shaft 1:1 Distance: [81.93]
 - RPM / Shaft 1:1 Time: [6300]
 - Time Car Reaction: [---]
 - Performance Comments
- Tachometer Readings:**
 - Maximum RPM: [7891]

On the right side of the Log Sheet view, there is a 3D model of a dragster vehicle.

General Information

Mousing over each item the related information is graphically shown on the right of the panel. Clicking each button the setting panel is prompted and you can modify the run information.



This screenshot shows the Log Sheet view with the 'Run Info' dialog box open. The dialog box contains the following fields and options:

- Event date: []
- Run type:
 - ☐ Time trial
 - ☐ Qualification
 - ☐ Elimination
- Run name: []
- Drive gear teeth: [14]
- Driven gear teeth: [96]
- Wheel: [1524]
- Comments: []
- Buttons: OK, Cancel

Lines connect the input fields in the 'Run Info' dialog to the corresponding fields in the Log Sheet view's General Information section, demonstrating the data flow and editing capability.



Run Performance

Mousing over each item the related information is graphically shown on the right of the panel. Clicking each button the setting panel is prompted and you can modify the performance information.

Log Sheet ³⁴

Event
Run Name
Drive Gear Teeth [#] 14
Driven Gear Teeth [#] 96
Wheel Circumference [mm] 1524
General Comments

Run Performance

Lane		
Time Start Offset	[s]	2.6420
Dial-In	[s]	----
Reaction	[s]	0.3800
60'	[s]	2.4712
330'	[s]	7.2025
1/8th mile ET	[s]	11.5043
ET Prediction	[s]	22.3780
330' mph	[km/h]	0.0
1/8th mph	[km/h]	0.0
Shift RPM	[rpm]	6606
Shift RPM Distance	[m]	10.15
Shift RPM Time	[s]	1.7400
RPM / Shaft 1:1	[rpm]	5400
RPM / Shaft 1:1 Distance	[m]	5400
RPM / Shaft 1:1 Time	[ms]	6300
Time Car Reaction	[s]	----
Performance Comments		

Run Performance

Time of Day

Lane ☐ Left ☐ Right

Dial In Time

Reaction Time 0.3800

60' Time 2.4712 2.4712 [7.2025]

330' Time [60' to 330'] 7.2025 7.2025 [11.5043]

1/8th Time [330' to 660'] 11.5043

330' Speed 0.0

660' Speed 0.0

Shift RPM 6606

Shift RPM Distance 10.15

Shift RPM Time 1.7400

RPM / Shaft 1:1 5400

RPM / Shaft 1:1 Distance 81.93

RPM / Shaft 1:1 Time 6.3000

Car Reaction Time 0.3800

Comments

OK Cancel

660

330

60



Tachometer Readings and Settings

Mousing over each item the related information is graphically shown on the right of the panel. Clicking each button the setting panel is prompted and you can modify Launch and Max information.

The screenshot displays the RIM software interface for a dragster. The main window has a title bar with 'All Analysis-0001 - Dragster' and a timestamp 'Jason - 2020, Nov 28 3:13 PM'. Below the title bar is a 'Log Sheet' tab. The main content area is divided into two sections: 'Tachometer Readings' and 'Settings'. Both sections have a table of data and a 'Comments' field. A red box highlights the 'Tachometer Readings' table, and a red box highlights the 'Settings' table. A 'Launch and Max' dialog box is open, showing 'Readings' and 'Launch' sections with input fields and 'Comments' fields. To the right of the main window is a diagram of a dragster chassis with labels for 'RPM', 'CHT', and 'EGT' pointing to the engine area. A vertical scrollbar is visible between the main window and the diagram.

Tachometer Readings	
Maximum RPM	[rpm] 7891
Maximum EGT	[C] 684.5
Maximum CHT	[C] 122.4
Readings Comments	

Settings	
Launch: RPM	[rpm] 3190
Launch: EGT	[C] 343.4
Launch: CHT	[C] 64.5
Settings Comments	

Launch and Max

Readings

Max RPM: 7891

Max Cylinder Head Temperature: 122.4

Max Exhaust Temperature: 684.5

Comments

Launch

RPM: 3190

Cylinder Head Temperature: 64.5

Exhaust Temperature: 343.4

Tire Pressure:

Comments

OK Cancel

Comments

RPM

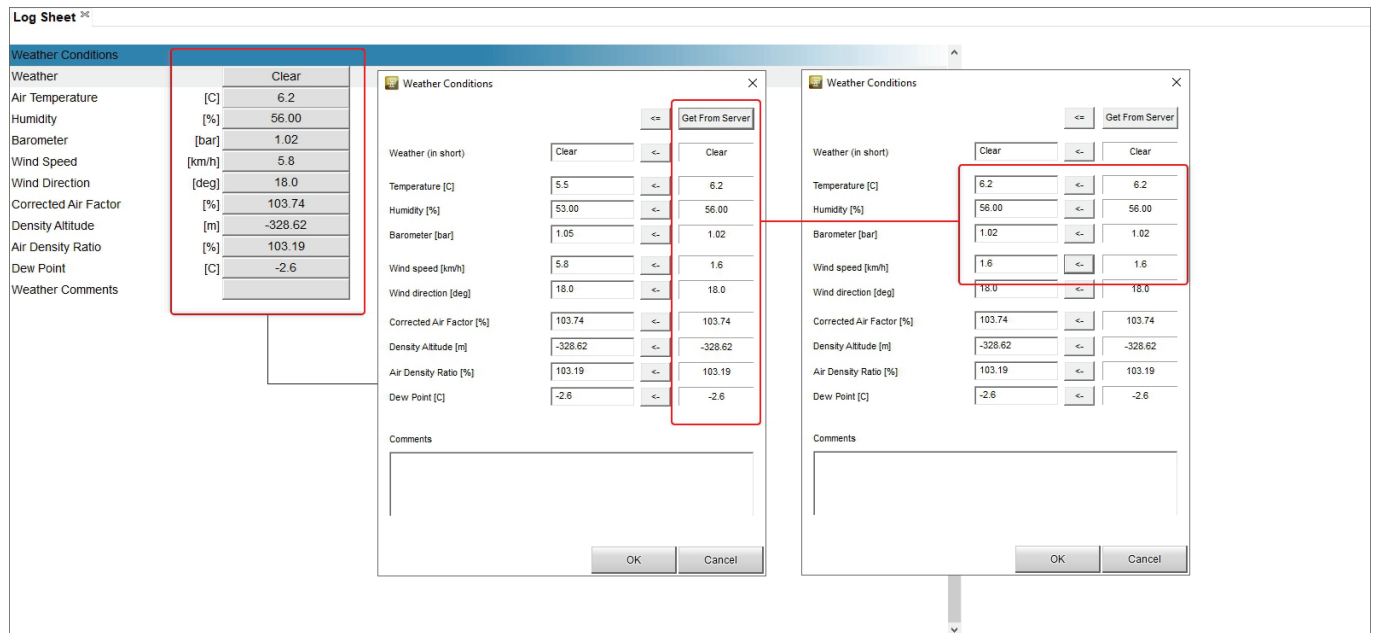
CHT

EGT

Weather Conditions

It shows all information concerning the weather condition. Clicking on any item weather panel is prompted. Here you can:

- get data of that day from “Open Weather” server pressing “Get from Server” button
- replace each data you have with these coming from the server clicking “<=” button corresponding to each item as in the example below
- replace all data you have with these coming from the server pressing “<=” button top of the column



The screenshot displays the 'Weather Conditions' interface within a 'Log Sheet' application. On the left, a list of weather parameters is shown with their current values. A red box highlights the 'Clear' button next to the 'Weather' parameter. To the right, two 'Weather Conditions' comparison windows are open, showing a side-by-side comparison of the current values with data from a server. A red box highlights the '<=' button at the top of the comparison window, which is used to replace all data with the server data.

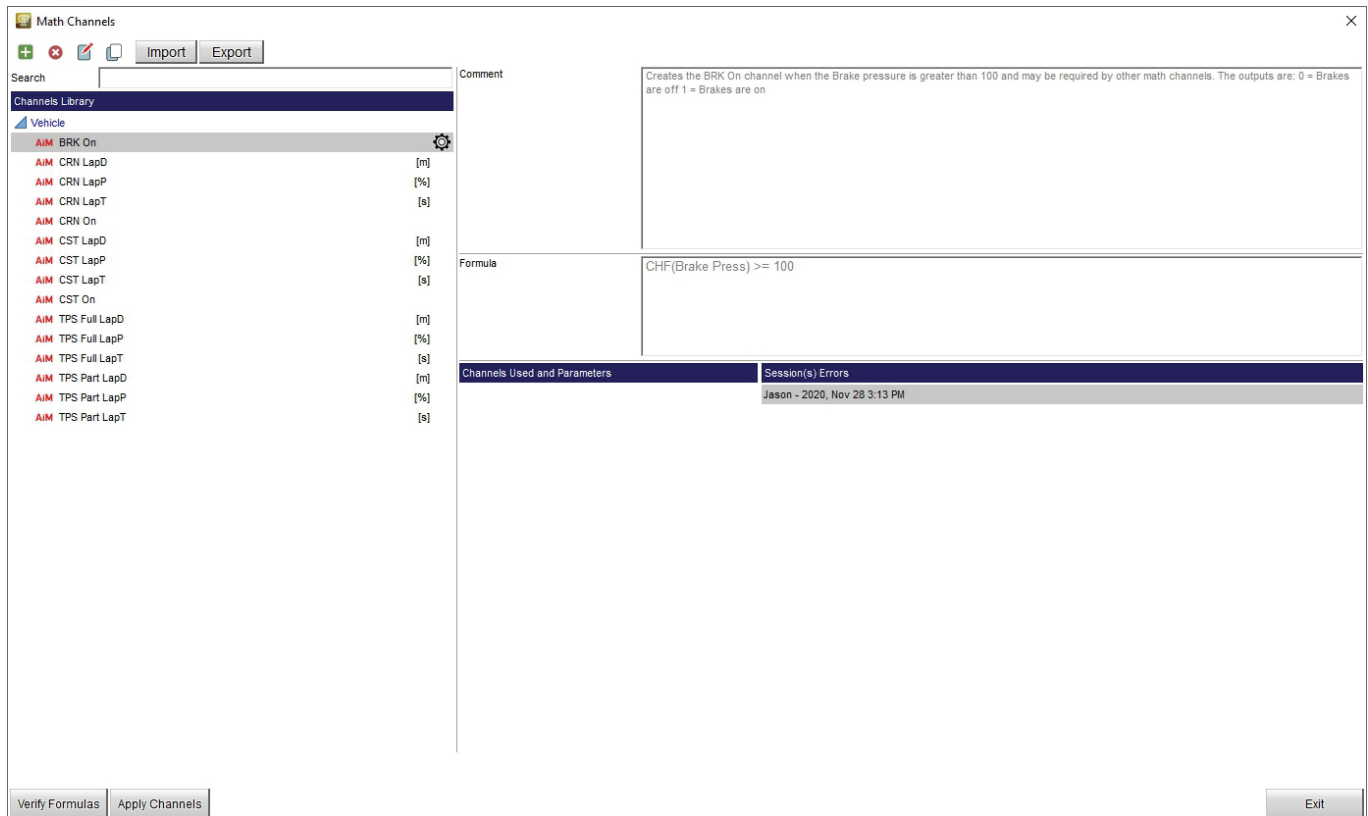
Parameter	Current Value	Server Value
Weather	Clear	Clear
Air Temperature [C]	6.2	6.2
Humidity [%]	56.00	56.00
Barometer [bar]	1.02	1.02
Wind Speed [km/h]	5.8	1.6
Wind Direction [deg]	18.0	18.0
Corrected Air Factor [%]	103.74	103.74
Density Altitude [m]	-328.62	-328.62
Air Density Ratio [%]	103.19	103.19
Dew Point [C]	-2.6	-2.6



7.2.5 – Math Channels



RS3Analysis software provides a default number of Math channels but also allows the user to create custom ones. This tool applies to all layouts. Math channels can also be imported/exported, added, modified, cloned and deleted using the top keyboard as shown below. Clicking the icon shown here above “Math channels” dialog window is prompted.



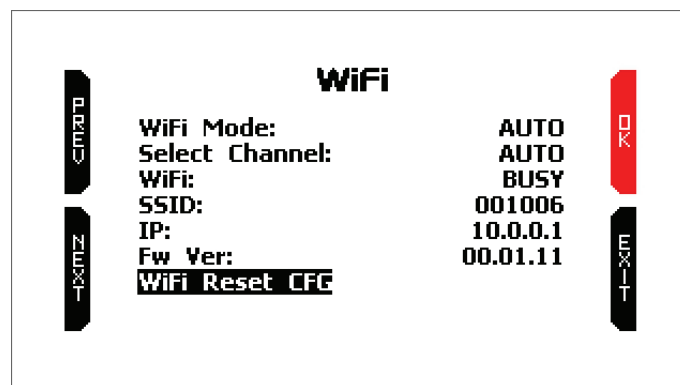
8 – Wi-Fi Configuration

MyChron5 660 Wi-Fi power mode can be set and reset via keyboard while its working mode can only be changed via software.

As said in paragraph 4.6 available Wi-Fi power modes are:

- AUTO: switches Wi-Fi on when the kart is stopped and automatically switches it off when the kart starts recording (RPM value higher than 850).
- OFF: Wi-Fi is always OFF

“WiFi Reset CFG” option allows to reset Wi-Fi configurations and is very useful if Wi-Fi password is missed.



MyChron5 660 Wi-Fi working mode can only be changed using RaceStudio3 software. Two possible Wi-Fi modes are available:

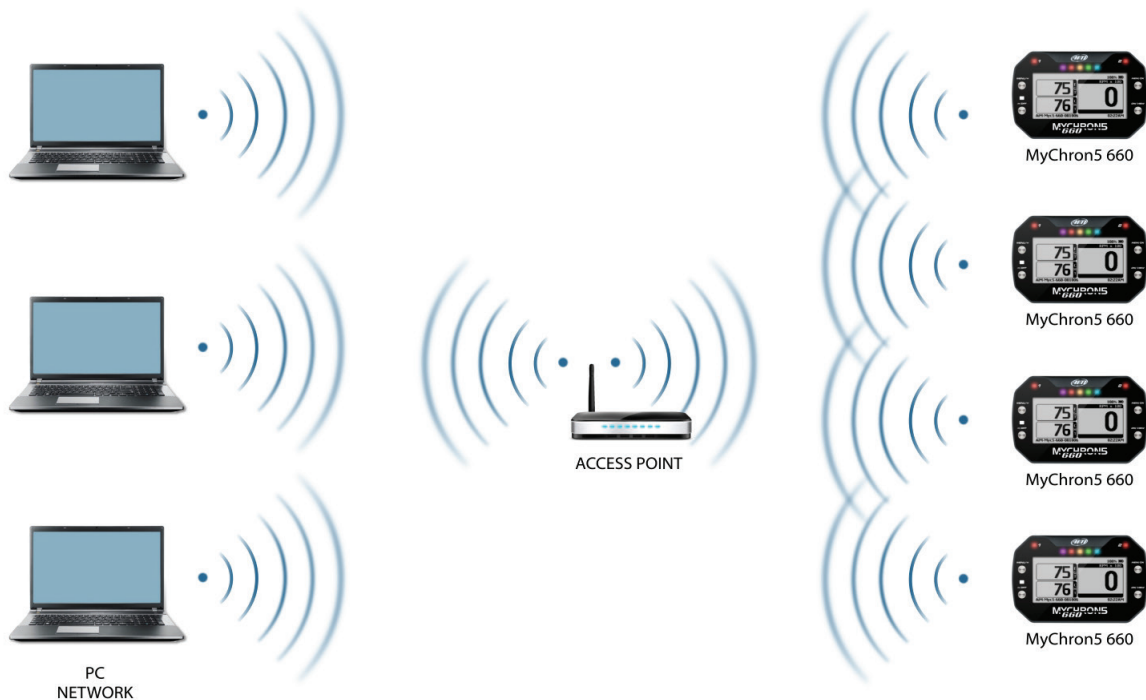
1 – As an Access Point (AP – default setting)

This is the ideal configuration if you have one only device and one only computer. In this situation, your MyChron5 660 creates a Wi-Fi network and works as an Access Point you can connect your PC to.



2 – Existing network (to connect to an existing Wi-Fi network – WLAN)

This mode is more complex and implies an external access point (AP) but is also more flexible and powerful because allows the communication among more than one device and more than one computer in the same network. MyChron5 660 and the PC must connect to an existing Wi-Fi network made by a device that works as an external Access Point.



When working in WLAN mode MyChron5 660 has two available security levels:

- network authentication: network password
- device authentication: MyChron5 660 password

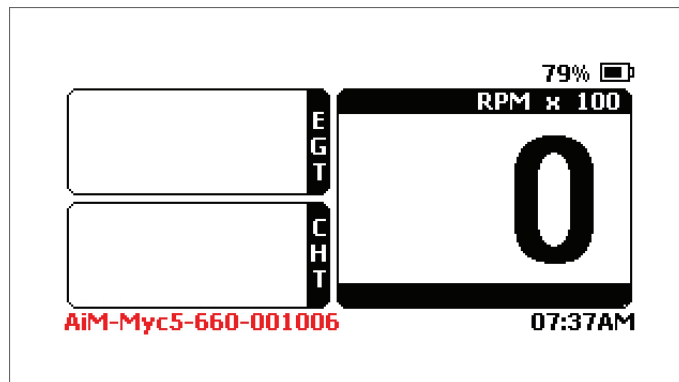
Both levels allow you to use different strategies. A PC in WLAN, for example, can see several AiM devices but can communicate only with those he knows the password of.

If you forget the password you can reset Wi-Fi configuration from MyChron5 660 menu as explained at the beginning of this chapter.

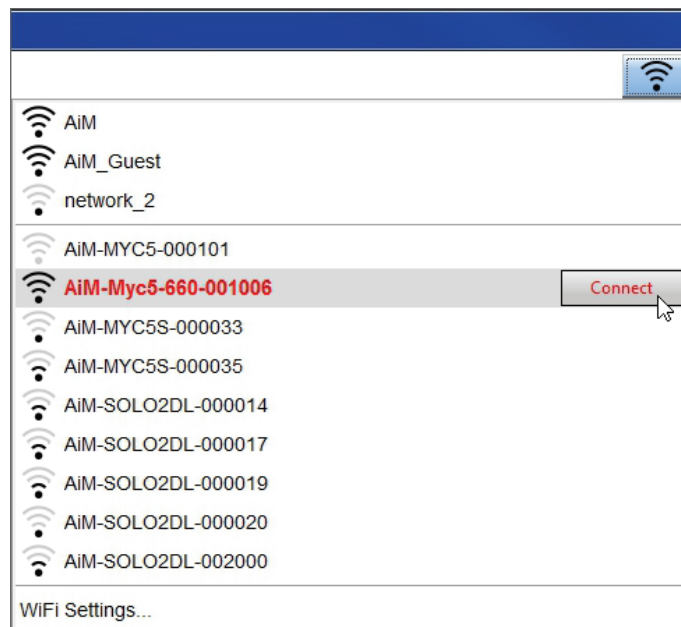
8.1 – Configuring MyChron5 660 as an Access Point (AP)

This is MyChron5 660 default configuration and is the easiest and most direct connection mode, ideal if you want to communicate with one MyChron5 660 using one PC. It is free and so completely accessible by anyone. Please set an access password as soon as possible. To establish a Wi-Fi connection:

- ensure that Wi-Fi is enabled
- read your MyChron5 660 name in the bottom line of the display main page (AiM-MYC5-660-001006 in the image below).



- run RaceStudio3
- click Wi-Fi icon and select your device
- in a few seconds, the connection is established



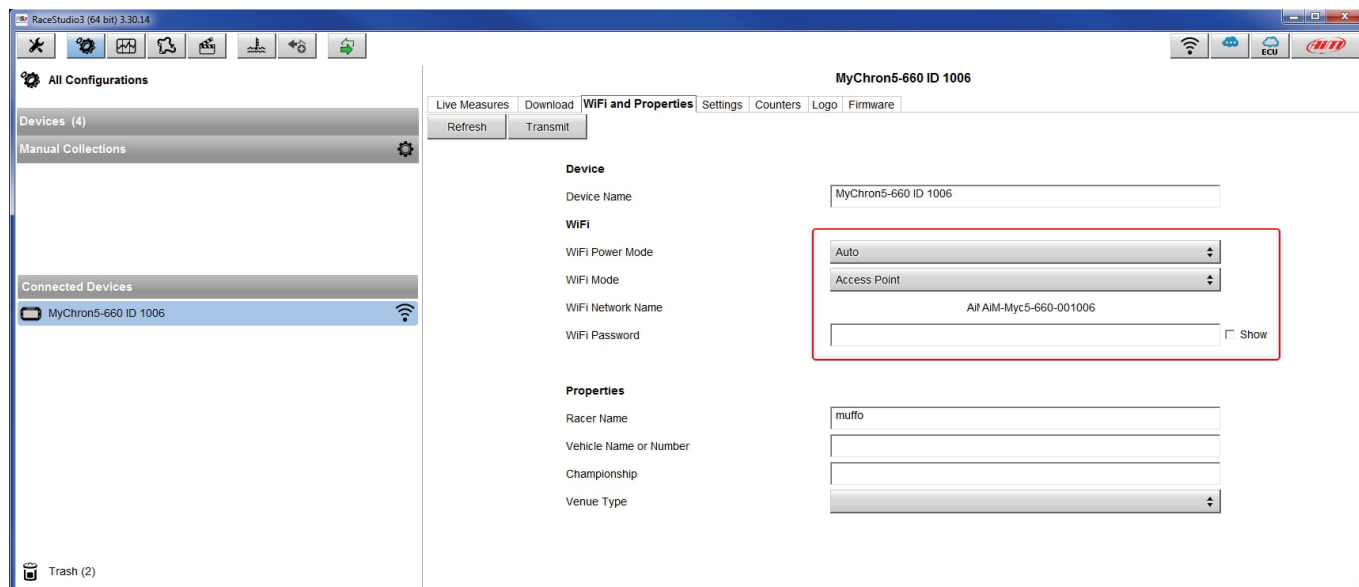
To set other parameters create a unique password to protect your device/your network. With a password, the communication is safe and encrypted using WPA2-PSK standard.

Characters allowed in the password are all letters, also capital, all digits and these characters: '+_(){}\$£!?^#@*\\\'"=~,./:/%"

Leading and trailing whitespaces are forbidden because this could cause incomprehension in some Windows™ versions.



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This AP or SSID name is unique for your device.

An example of name is: **"AiM-MYC5-660-001006"** where:

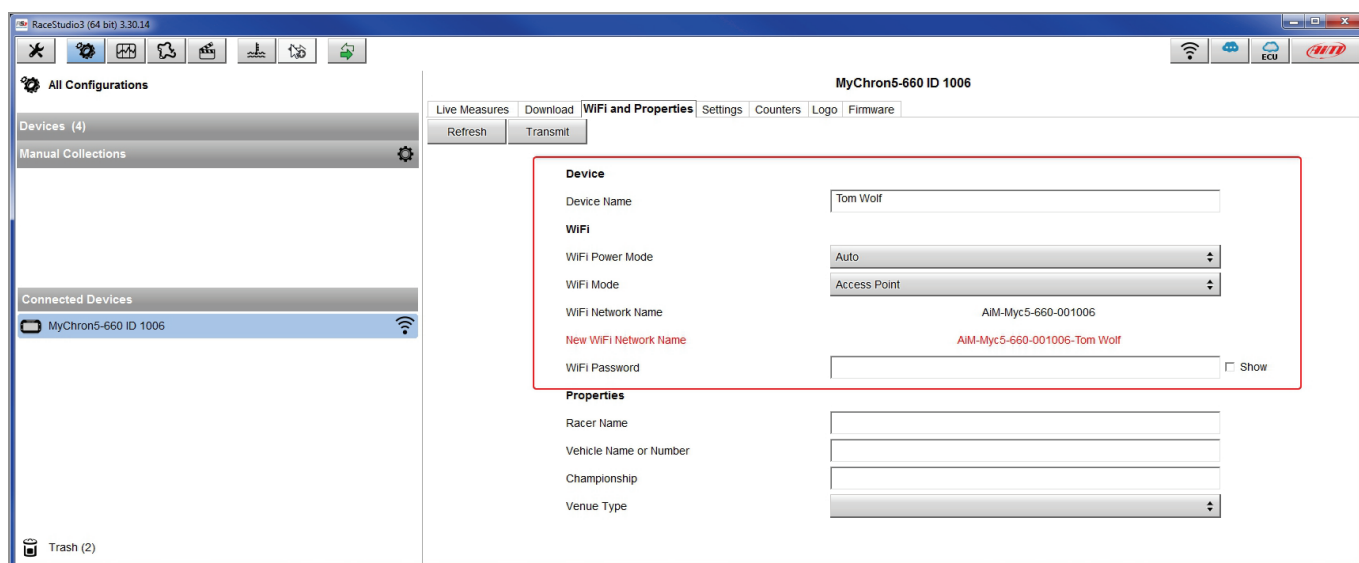
- "AiM" is the prefix of all AiM devices
- "MYC5-660" is the device identifier
- "001006" is the device serial number assigned by the factory.

To make your device more recognizable you can add a name to the SSID. with the limit of eight characters. Allowed characters are all letters, capital too, all digits and these characters: '+ - _ () [] {} !'.

Leading and trailing whitespaces are forbidden because this could cause incomprehension in some Windows™ versions.

If, for example, you add the driver's name, Tom Wolf, the network name (SSID) becomes: **"AiM-MYC5-660-001006-Tom Wolf"**

Once all parameters set click "Transmit". MyChron5 660 reboots and is configured with the new parameters. If MyChron5 660 is protected by a password, as recommended, RaceStudio3 will ask that password to authenticate.



Please Note: the same Wi-Fi connection can be created with the operative system tool.

Once the device has been authenticated in the Wi-Fi network you can communicate with it using RaceStudio3.

8.2 – Adding MyChron5 660 to an existing network

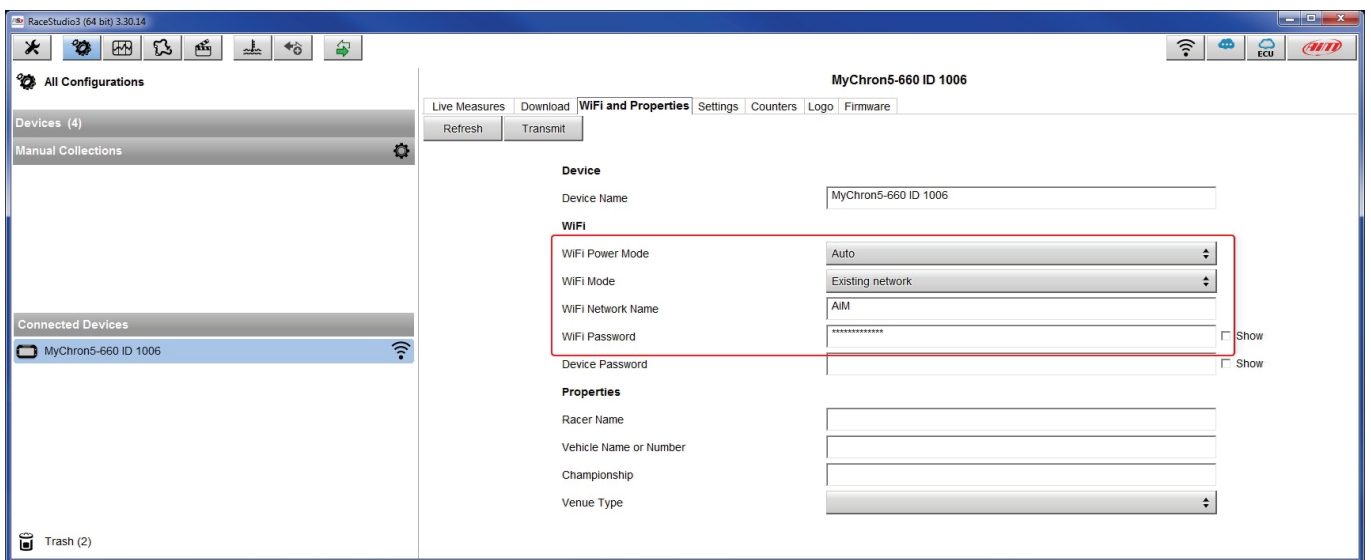
This situation is ideal for a team with multiple drivers and staff members and allows the communication among more AiM devices using the same PC network. Each MyChron5 660 can have its password that adds another security and privacy level to the network.

Enter “Wi-Fi and properties” tab and set it on “Existing Network”; fill in network name, network password and device password.

Transmit the network settings to your device clicking “Transmit”: your device reboots and joins that network.

Please note: the only admitted password are those following WPA2-PSK standard.

To complete this procedure use RaceStudio3 software as here explained.



Here above you see a device “MyChron5 660 ID 1006” that is switching from AP to WLAN (“Existing Network”) mode.

Network name is “AiM” and does not work with free access because is protected by a password.

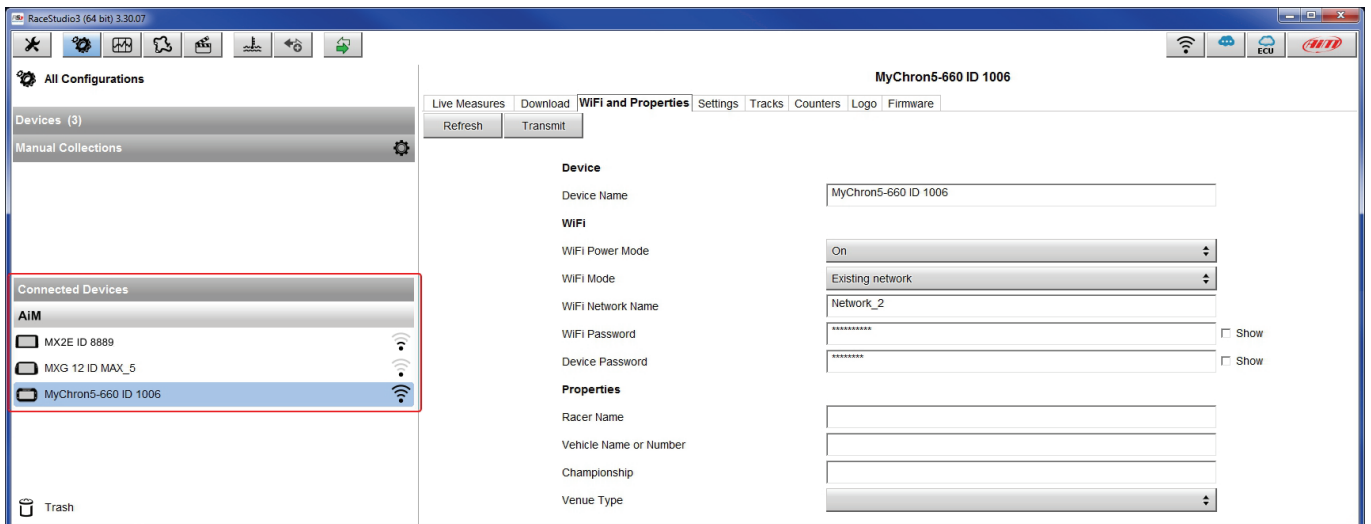


User Guide

To obtain connectivity on the device the PC has to be authenticated to the same network as shown here below.



When the PC is authenticated to the network called "AiM" it can see all devices you configured to access the same network. In the image below three AiM devices are connected to the same "AiM" WLAN.



8.3 – Wi-Fi network settings

In this chapter is a short description of how to configure a WLAN including AiM devices and a PC. Here below is an example of configuration.

ROUTER SETTINGS
Use this section to configure the internal network settings of your router. The IP Address that is configured here is the IP Address that you use to access the Web-based management interface. If you change the IP Address here, you may need to adjust your PC's network settings to access the network again.
Router IP Address :
Subnet Mask :
Device Name :
Local Domain Name : (optional)
Enable DNS Relay : ☒

DHCP SERVER SETTINGS
Use this section to configure the built-in DHCP Server to assign IP addresses to the computers on your network.
Enable DHCP Server : ☒
DHCP IP Address Range : to
DHCP Lease Time : (minutes)
Always Broadcast : ☒ (compatibility for some DHCP Clients)
NetBIOS announcement : ☐
Learn NetBIOS from WAN : ☐
NetBIOS Scope : (optional)
NetBIOS node type : ☒ Broadcast only (use when no WINS servers configured)
☐ Point-to-Point (no broadcast)
☐ Mixed-mode (Broadcast then Point-to-Point)
☐ Hybrid (Point-to-Point then Broadcast)
Primary WINS IP Address :
Secondary WINS IP Address :

For better network performances we suggest the use of a network device equipped with a DHCP server and using 3x3 MIMO technology like, for example a Linksys AS3200.

To maximize the bandwidth the Internet should not be allowed on this WLAN; this means that the DHCP server should be configured without any DNS address nor gateway by default.



The parameters for the device network configuration are:

- **Wireless network name: AiM**
It means that the WLAN network name is "AiM." A PC has to be authenticated in this network to interact with any AiM device of this network.
- **Gateway address: 192.168.0.1**
primary DNS server: 0.0.0.0
secondary DNS server: 0.0.0.0
(These settings prevent Internet connectivity on this WLAN.)
- **Subnet mask: 255.255.255.248**
Enable DHCP server: yes
DHCP IP address range: 192.168.0.2 to 192.168.0.6

These settings enable a DHCP server running on this WLAN and provide an IP address in a 2-6 range. This means that this network allows 5 network hosts.

The number of devices on a WLAN network depends on the subnet mask. Here below are typical examples of network masks and IP addresses range.

The configuration in bold is the one we suggest (if a greater number of devices is not needed), being the one that makes it easier and quicker for Race Studio 3 the identification of the devices in the network.

Subnet mask:	IP address range:	Number of devices (PC+MyChron5):
255.255.255.0	192.168.0.1 – 254	254
255.255.255.128	192.168.0.1 – 126	126
255.255.255.192	192.168.0.1 – 62	62
255.255.255.224	192.168.0.1 – 30	30
255.255.255.240	192.168.0.1 – 14	14
255.255.255.248	192.168.0.1 – 6	6

8.4 – The Internet connectivity

For an optimal speed of AiM device(s) it is recommended not to allow the Internet on the same network and to set the WLAN in the same way.

The Internet access can of course be allowed on the network but this would degrade the communication.

This slightly slower speed can be suitable but a second Wi-Fi connection through an additional hardware (NIC – Network Interface Card) is to be preferred.

This configuration would provide an optimal speed of the data network of your AiM device(s) and at the same time would provide an internet connectivity with the second NIC.

8.5 – Connection issues

It can occur that MyChron5 660 logger is correctly connected to Race Studio 3 via Wi-Fi but the user interface does not show it. This may be because Wi-Fi port setting is set with a static IP. To switch it to dynamic (DHCP):

- open "Network and sharing centre" in the Windows™ research engine
- right click on the Wi-Fi connection and a panel shows up
- select "Properties" option
- double click on "Internet Protocol version 4 (TCP/IPv4)"
- verify that option "Obtain an IP address" is active

For further information refer to FAQ section, Wi-Fi of www.aim-sportline.com.

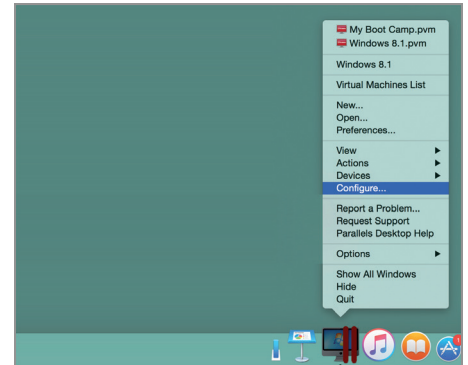
8.6 – Working on Mac™ with virtualized Windows™

RaceStudio3 only works on Windows™ operative systems; Mac users can use a virtualized Windows™ machine.

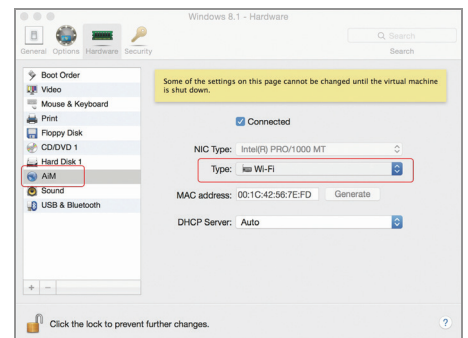
The main problem is that the host OS (Mac) must share its Wi-Fi interface with the virtualized operative system (Windows) as Ethernet interface and not as Wi-Fi interface.

Configuring Parallels(™)

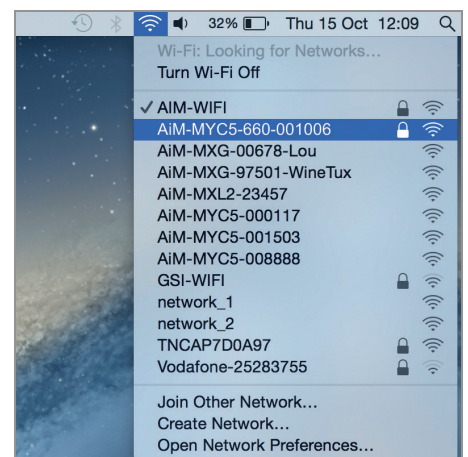
Select “Menu -> Configure...” in Parallels.



Press “Hardware” – top on the page that shows up – and select “Network” in the drop-down menu on the left. Right on the configuration panel set "Type" field on “Wi-Fi”.

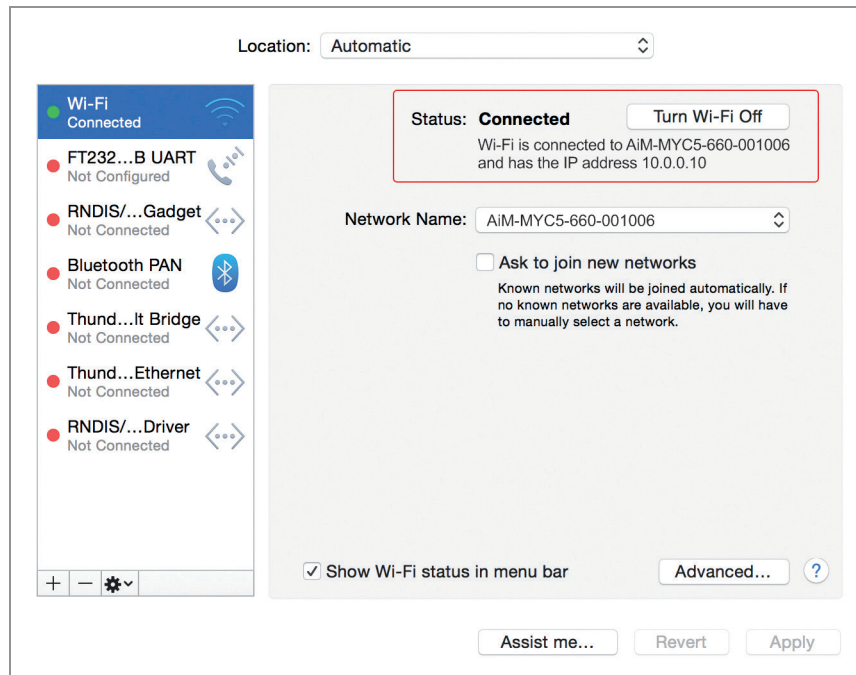


Then select the device to communicate with.




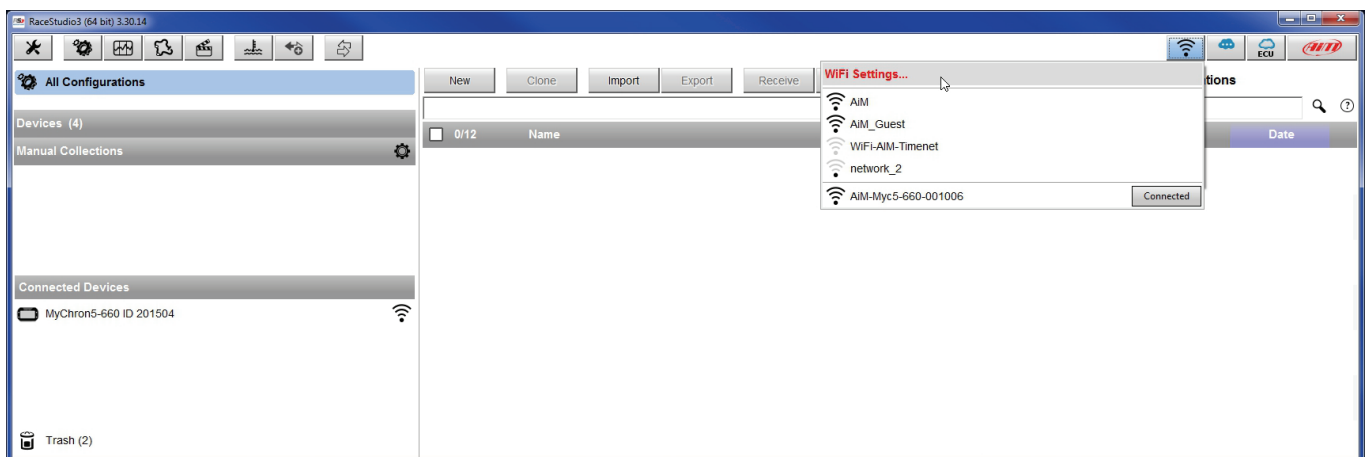
To ensure that the communication works select “Open Network preferences...” menu.

Verify that the status in the window that shows up is “Connected” and that the IP address associated is, for example, 10.0.0.10 (could be 10.0.0.11, 10.0.0.12, or generically 10.0.0.x).

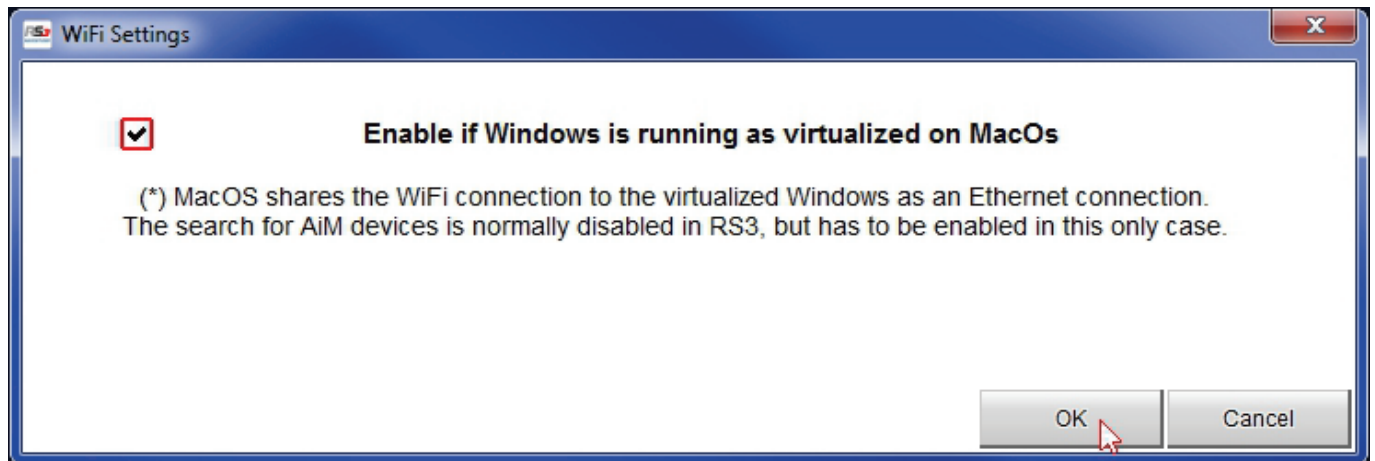


To enable Race Studio 3 correctly working on a Mac with virtualized Windows™.

- press Wi-Fi icon 
- select “Wi-Fi Settings” option



- enable the checkbox shown here below
- click "OK"



8.7 – Connected device visualization issues

It may occur that using Race Studio 3 on a MacOS with virtualized Windows the device connected via Wi-Fi takes some time to be shown in the network or is not shown at all. This is why we always suggest using an Wi-Fi (WLAN) router.

This router works as an Access Point allowing the connection of more external devices to its network. MyChron5 660 Wi-Fi configuration is to be set on Existing Network as explained before.

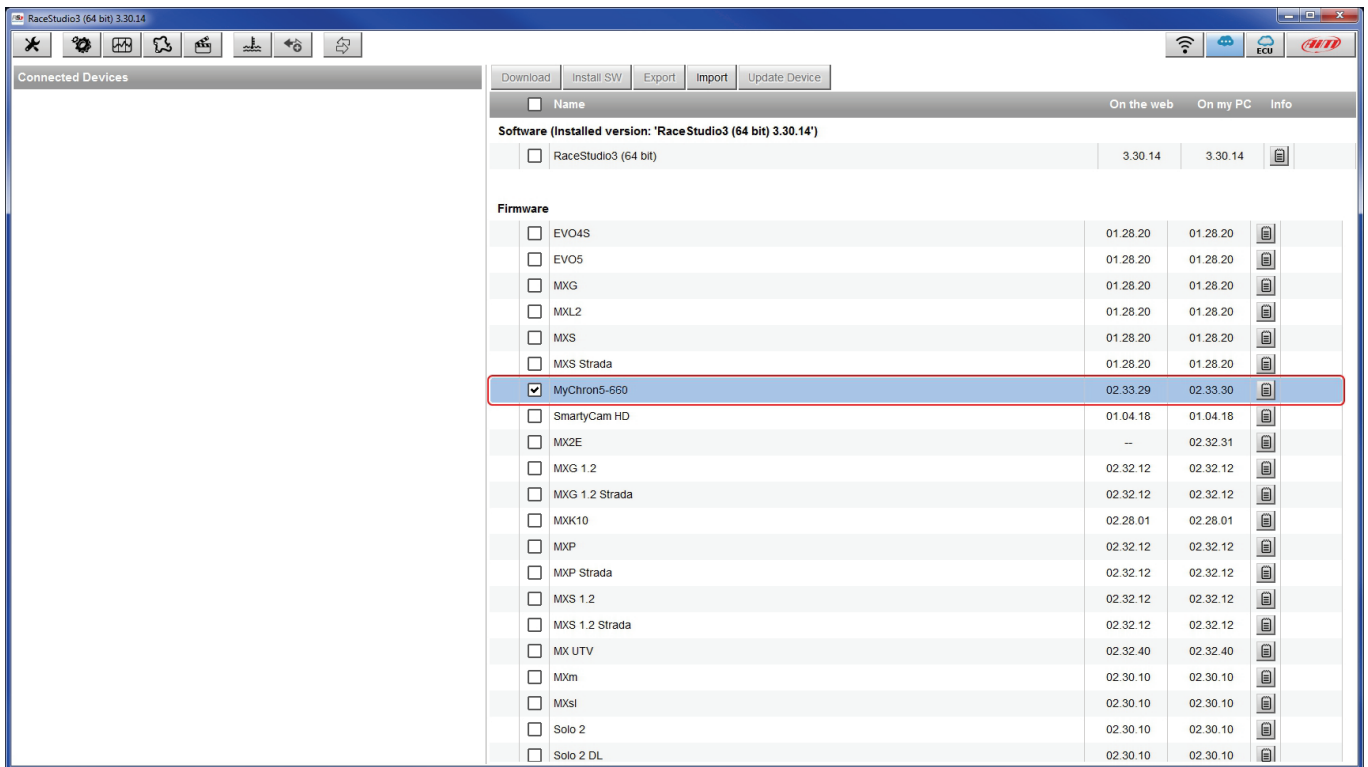
9 – Firmware and software upgrading

























Our technicians and engineers are constantly working to improve both the firmware (the application that manages your device) and the software (the application you install on your PC).

Each time a new firmware and/or software version is available the icon here above appears with an arrow indicating that something is available for download (otherwise the icon only shows the cloud).

Click it and freely download the new applications.



Name	On the web	On my PC	Info
Software (Installed version: 'RaceStudio3 (64 bit) 3.30.14')			
<input type="checkbox"/> RaceStudio3 (64 bit)	3.30.14	3.30.14	
Firmware			
<input type="checkbox"/> EVO4S	01.28.20	01.28.20	
<input type="checkbox"/> EVO5	01.28.20	01.28.20	
<input type="checkbox"/> MXG	01.28.20	01.28.20	
<input type="checkbox"/> MXL2	01.28.20	01.28.20	
<input type="checkbox"/> MXS	01.28.20	01.28.20	
<input type="checkbox"/> MXS Strada	01.28.20	01.28.20	
<input checked="" type="checkbox"/> MyChron5-660	02.33.29	02.33.30	
<input type="checkbox"/> SmartyCam HD	01.04.18	01.04.18	
<input type="checkbox"/> MX2E	--	02.32.31	
<input type="checkbox"/> MXG 1.2	02.32.12	02.32.12	
<input type="checkbox"/> MXG 1.2 Strada	02.32.12	02.32.12	
<input type="checkbox"/> MXK10	02.28.01	02.28.01	
<input type="checkbox"/> MXP	02.32.12	02.32.12	
<input type="checkbox"/> MXP Strada	02.32.12	02.32.12	
<input type="checkbox"/> MXS 1.2	02.32.12	02.32.12	
<input type="checkbox"/> MXS 1.2 Strada	02.32.12	02.32.12	
<input type="checkbox"/> MX UTV	02.32.40	02.32.40	
<input type="checkbox"/> MXm	02.30.10	02.30.10	
<input type="checkbox"/> MXsl	02.30.10	02.30.10	
<input type="checkbox"/> Solo 2	02.30.10	02.30.10	
<input type="checkbox"/> Solo 2 DL	02.30.10	02.30.10	

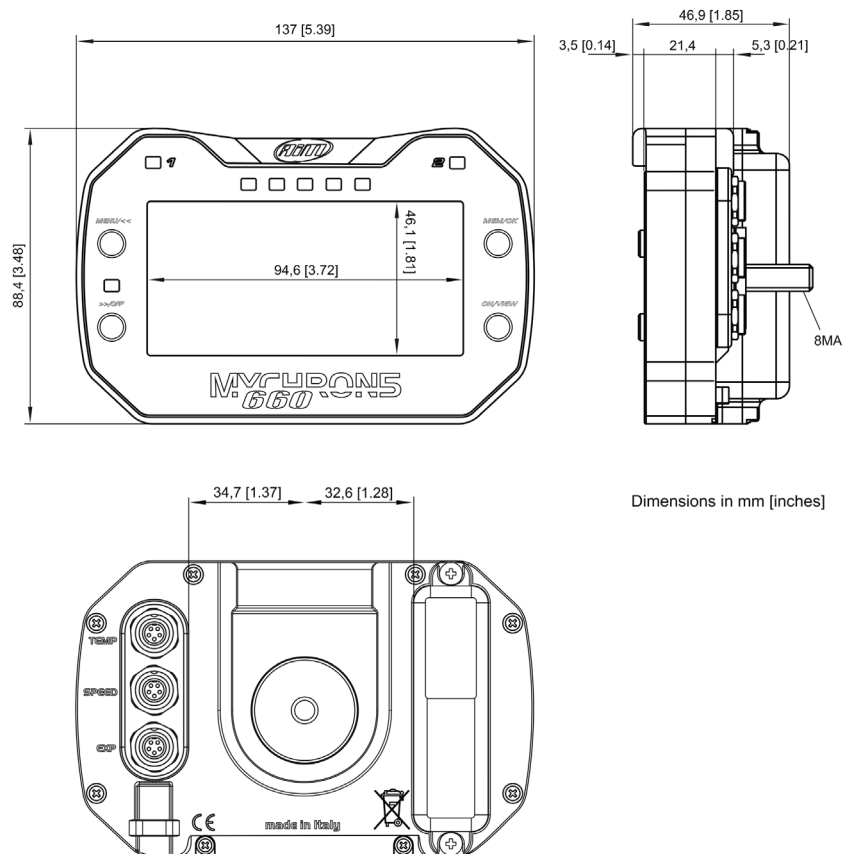
Once the new firmware has been downloaded, connect your device to the PC via Wi-Fi to perform a firmware upgrade press "Update device". In a few seconds, the device is ready.



10 – Technical specifications and drawings




• Wi-Fi connection	Included
• Display resolution	268x128 pixel
• Backlight	7 configurable RGB colours
• Multifunction LEDs	5 RGB LEDs
• Alarm LEDs	2 configurable
• RPM sampling frequency	50 Hz
• Body	Glass fibre reinforced Nylon
• Pushbuttons	Metal
• Battery	Rechargeable 2900 mAh Lithium Ion
• Internal memory	4Gb
• Dimensions	137x88,4x47 mm
• Weight	390g battery included
• Waterproof	IP67
• Analysis software	RaceStudio Analysis 3 freely downloadable from www.aimshop.com

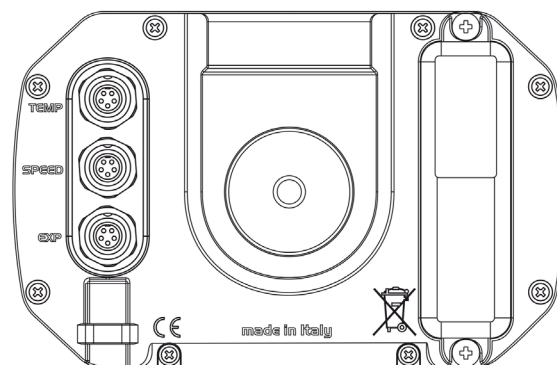
MyChron5 660 dimensions in mm [inches]



Dimensions in mm [inches]

MyChron5 660 pinout

TEMP 7 pins Binder 712 female connector (external view)	SPEED 4 pins Binder 712 female connector (external view)	EXP 5 pins Binder 712 female connector (external view)
 <ul style="list-style-type: none"> 1 - Thermocouple 1 2 - GND 3 - Thermocouple 2 4 - GND 5 - Thermo resistor 1 6 - GND 7 - Thermo resistor 2 	 <ul style="list-style-type: none"> 1 - Speed 2 - GND 3 - +Vbattery 4 - Reserved 	 <ul style="list-style-type: none"> 1 - CAN+ Exp 2 - GND 3 - +Vbout CAN 4 - CAN- Exp 5 - +Vbext CAN



Phonic wheel dimensions in mm [inches]

