RAPID BIKE

MASTER FREE

END-USER SOFTWARE
FOR RAPID BIKE MODULES

INSTALLATION AND USE

INDEX

1. System Requirements

- Windows XP SP3/Vista/ 7 / 32 / 64 /with 512 MB RAM (recomm. 1Gb RAM)
- Minimum screen resolution 1024x768 with 256 colours
- At least 2 USB-port
- CD-Rom reader for the installation
- At least 200 MB free in the hard disk
- Fast ADSL Internet connection activated
- Internet Explorer 6 or upper version

The software can be also installed on Apple computers with Mac OS by means of a VMware Fusion virtual machine equipped with a Windows operative system.

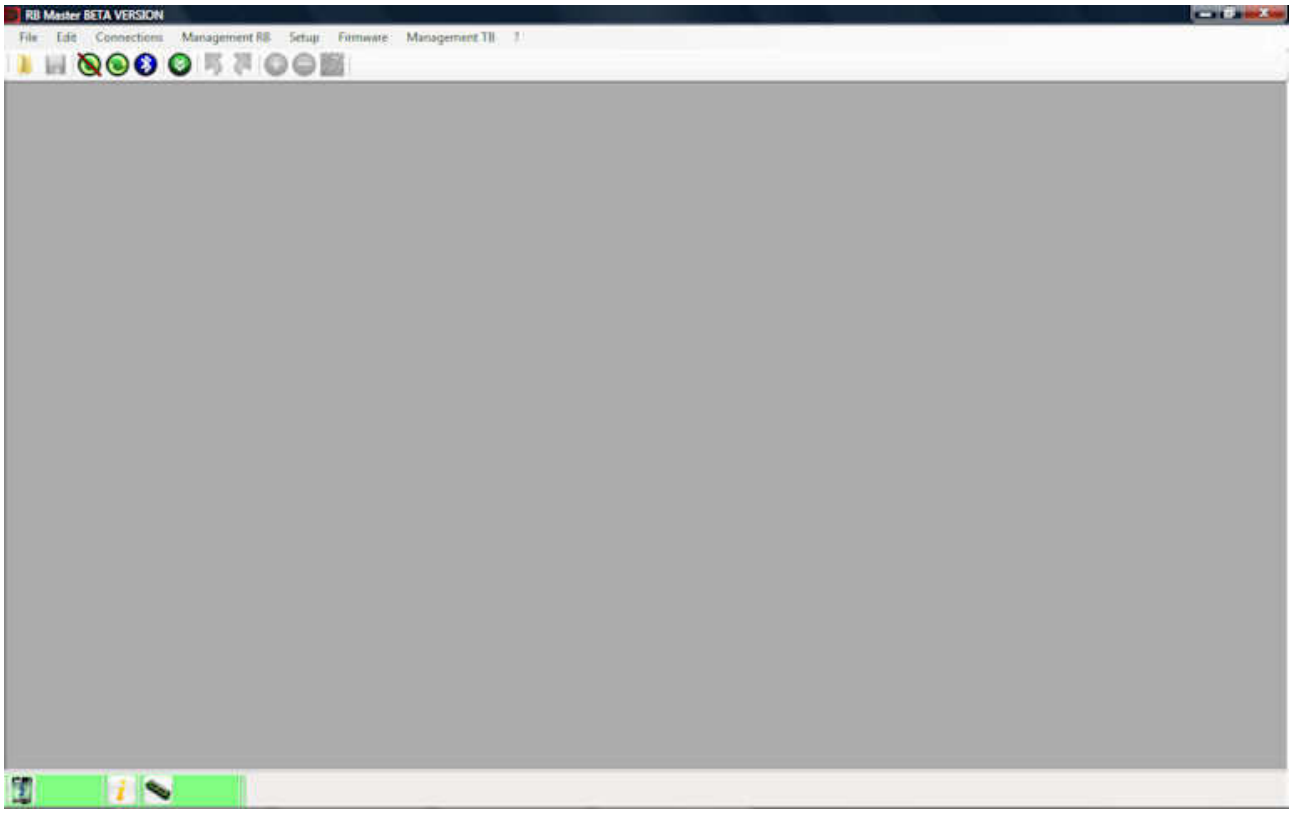
2. Installation

1. Be sure that there are no Rapid Bike devices connected to the computer.
2. Uninstall all the Rapid Bike software and drivers already installed.
3. Insert the CD in the unit.
4. If nothing happens, open the CD's content in Windows Explorer and double-click the file **setup.exe**.
5. Follow the wizard instructions.
6. Once the Rapid Bike Master Free installation is finished extract the CD from the drive.

3. The Software

3.1 Overview

Double-click on the icon  to start the software.



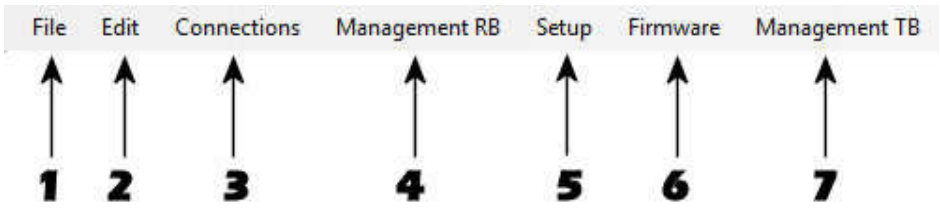
Main window

When the software is started for the first time after the installation, it will require an e-mail address for the registration. An Internet connection is required during this step.

If the Rapid Bike module is connected to the computer, by means of the USB adapter (cod. F27ADMUSB2), the software automatically connects and downloads maps from it.
In the menu **Setup** it is possible to enable or disable the automatic connection to the module, selecting the option **Get map at startup**.

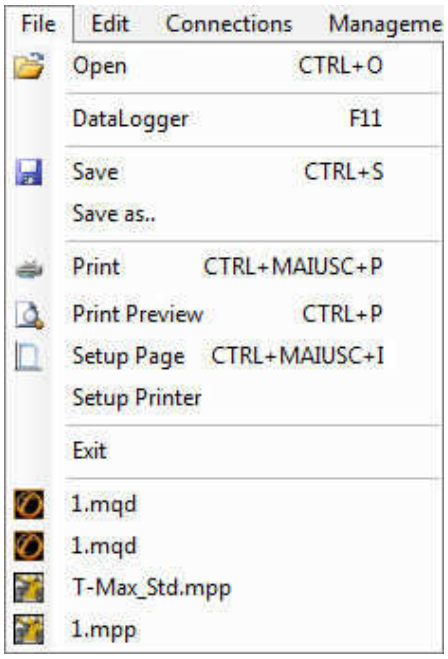
At the top of the main window there is the Menu bar:

1. **File**
2. **Edit**
3. **Connections**
4. **Management RB**
5. **Setup**
6. **Firmware**
7. **Management TB** (only software PRO)



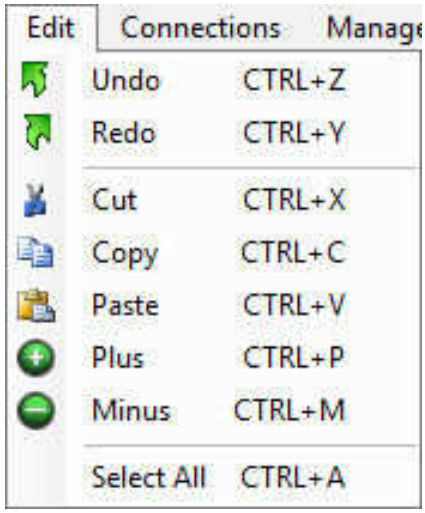
Each menu will be described in detail below:

- **File menu**



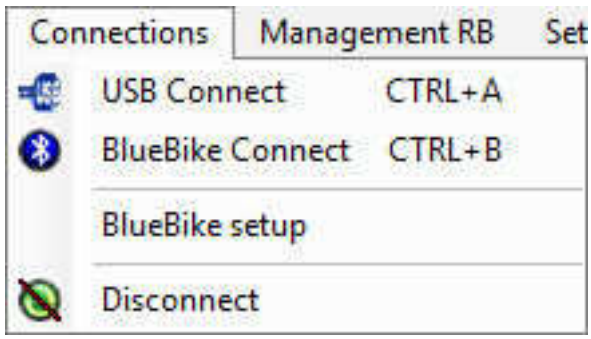
  - **Open**: open a Rapid Bike map (*.mpp) or a Tuning Bike project (*.mqd).
  - **DataLogger** (only software PRO).
  - **Save**: save an existing file which is already open in the software (Rapid Bike map or Tuning Bike project).
  - **Save as**: save a new file (Rapid Bike map or Tuning Bike project).
  - **Print**: print the map's table and its chart.
  - **Print preview**: show a preview of the print result.
  - **Setup Page**: change settings of the print page.
  - **Setup Printer**: open the window for the printer settings.
  - **Exit**: close the software.
  - Down below are listed the recent files opened with the software.

- **Edit menu**



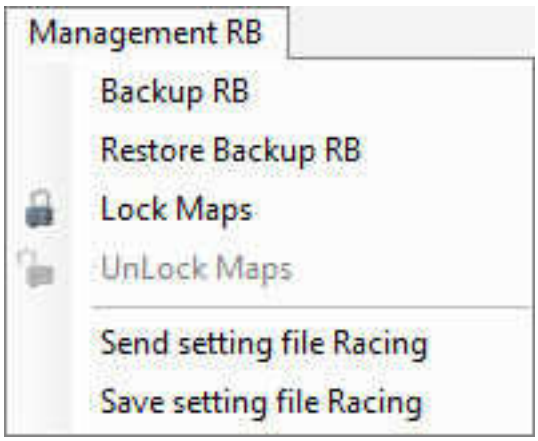
  - **Undo**: erase the last action (it can be use several time).
  - **Redo**: it restores the last operation erased with **Undo**.
  - **Cut / Copy / Paste**: typical Windows functions, used to modify maps.
  - **Plus / Minus**: increase or decrease values in the map cells.
  - **Select all**: select all the cells in the map.

- **Connections menu**



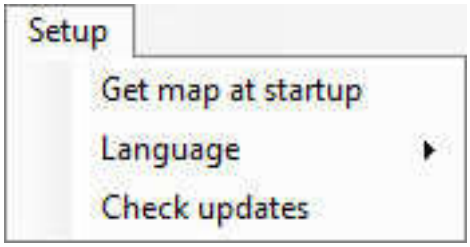
  - **USB Connect**: enable the connection between software and Rapid Bike module by means of the USB adapter.
  - **BlueBike Connect**: enable the connection between software and Rapid Bike module by means of the Bluetooth adapter.
  - **BlueBike setup**: change settings of the Bluetooth connection.
  - **Disconnect**: close the connection between software and Rapid Bike module.

- **Management RB menu**



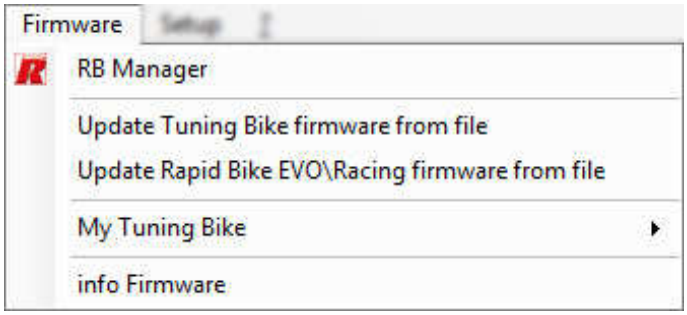
- **Backup RB**: it makes a complete backup of the RB module by saving maps and settings (auto-adaptivity, rpm limiter, quick shifter, etc.). It is related to the programming (model of bike) and to the serial number of the module.
- **Restore backup RB**: it loads the backup, previously saved, into the module. It won't be loaded if the module is programmed for a different bike.
- **Lock Maps** (only software PRO).
- **UnLock Maps**: unlock the maps of the module.
- **Send setting file Evo / Racing**: send the settings of the feature **Auto adaptivity**, **Quick shift**, previously saved into a file, to the Rapid Bike Evo or Racing module.
- **Save setting file Evo / Racing**: save a file which includes settings of all the feature into the forms **Auto adaptivity**, **Quick shif** and **RB Features**. In this way it will be possible to load the same settings on other modules programmed for the same motorcycle.

- **Setup menu**



- **Get map at startup**: at startup the software will connect automatically to the Rapid Bike module and download the maps.
- **Language**: change the software's language.
- **Check updates**: it will force the search for the updates.

- **Firmware menu**



- **RB Manager** (only software PRO).
- **Update Tuning Bike firmware from file** (only software PRO).
- **Update Rapid Bike EVO\Racing firmware from file**: update the firmware of the Rapid Bike EVO or Racing modules by loading a file *.flx present on the computer.
- **My Tuning Bike**: update the My Tuning Bike module's firmware. It can update individually up to four modules connected to the same Rapid Bike module.
- **Info Firmware**: detailed information about the firmware loaded into the Rapid Bike module.

<u>The firmware upgrades for the Rapid Bike EVO and Racing modules are automatically installed on the computer with the automatic updates of the Rapid Bike system (an Internet connection is required).</u>

- **Menu ?**

    - **About**: shows a window containing some informations like:
        - Software version
        - The tab **PC** shows some informations regarding the operative system of the computer.

Under the Menu bar there is the Toolbar including some of the features already listed above:

1. **Open**
2. **Save**
3. **Disconnect**
4. **Connect**
5. **Connect with BlueBike**
6. **Get map**
7. **Undo**
8. **Redo**
9. **Plus**
10. **Minus**
11. **Edit**

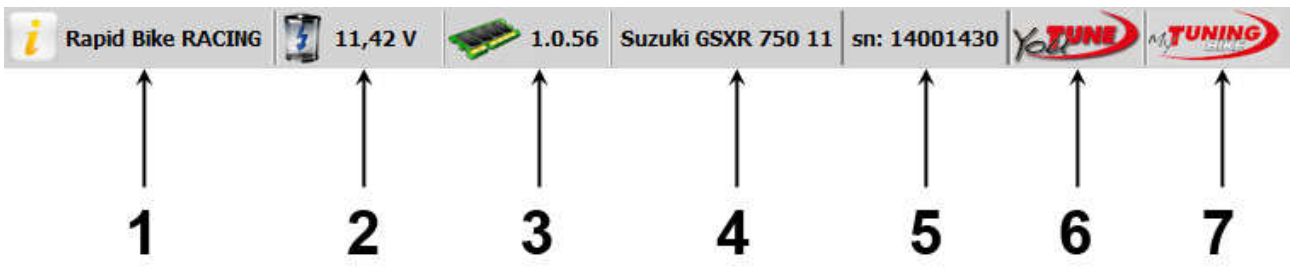
You can access different sections of the software after downloading the contents of a module (both Rapid Bike and Tuning Bike), those sections are grouped into forms:

- **Maps**
- **Tuning Bike** (only software PRO)
- **Auto Adaptivity**
- **TC – LC**
- **Quick shift**
- **RB Features**
- **Status**

Only some form will be available depending on the connected module

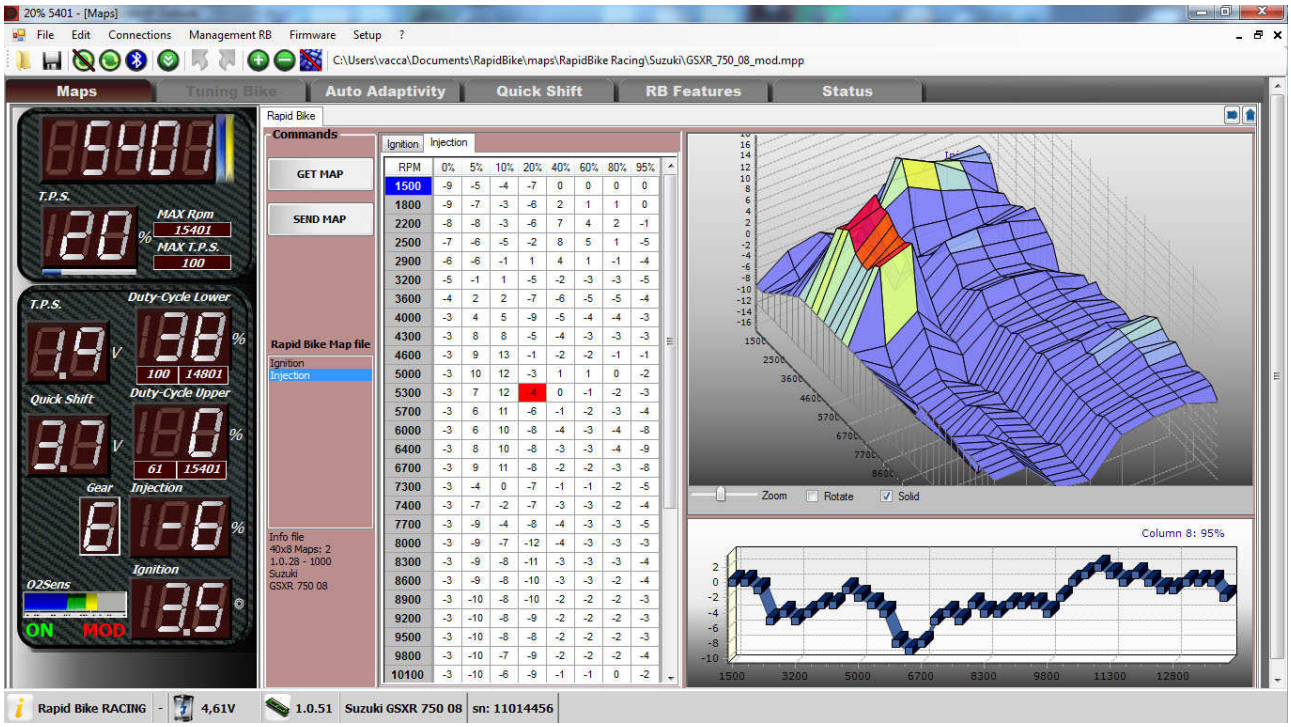
At the bottom of the main window there is the Status bar which gives informations about:

1. **Module connected**
2. **Feeding voltage of the module**
3. **Firmware version**
4. **Make and model of the motorcycle for which the module is programmed**
5. **Serial number of the module (only with Evo and Racing)**
6. **Youtune controller connected and powered**
7. **My Tuning Bike connected and powered**



3.2 Maps

In this form it is possible to see and modify maps saved on the computer or into the Rapid Bike module.



Information about the system are shown on the left side of the windows:

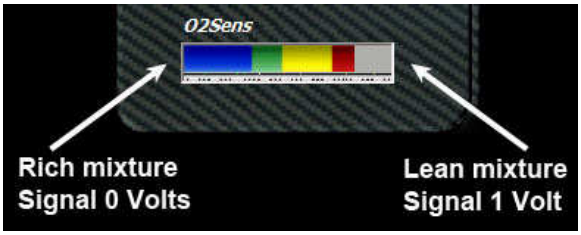
Information about the system are shown on the left side of the windows:

- **Digital rpm counter**. A blue marker is displayed when modules are reading the rpm from the crankshaft sensor signal. If this marker doesn't appear the modules are calculating rpm from the injection time. A yellow vertical marker appears when the Racing module is managing the ignition signal: that means the module can change this signal. A red marker appears on top of the RPM counter when the Traction Control intervenes, showing word **TC** and the RPM at which the intervention happened.

- **T.P.S.**: throttle opening value showed in percentual and with a horizontal marker.
- **MAX Rpm** e **MAX T.P.S.**: maximum values reached by the T.P.S. and the rpm.

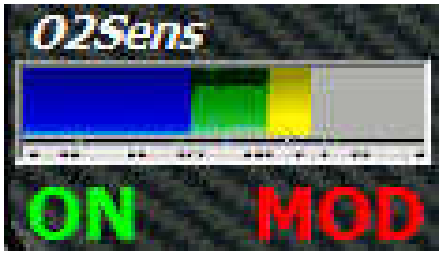
- **T.P.S.**: Throttle position sensor voltage.
- **Quick Shift**: Quickshifter sensor voltage.
- **Gear**: gear used (only with Rapid Bike EVO applications with the connection to the gear position sensor).
- **Duty-cyle**: time of injectors' opening in percentual on the engine cycle. The duty cycle is shown for lower and upper injectors for bikes with two injectors for each cylinder.
- **Injection**: amount of injection's adjustment showed in real-time.
- **Ignition**: amout of ignition's adjustment showed in real-time (only with Rapid Bike Racing)
- **O2Sens**: graphic indicator of the oxygen sensor signal (lambda sensor signal).

The indicator **O2Sens** shows the signal that is read from the stock narrow band O2 sensor installed on the bike, this signal moves between 0 volts (lean mixture) and 1 volts (rich mixture).
Manufacturers don't use all the same type of narrow band sensor and this makes impossible to assign a specific stoichiometric value to what is shown.



The O2 sensor starts its heating process once the engine is on, during this process the O2 sensor signal makes a complete cycle from 0 volts to 1 volt or vice versa (it depends by the kind of sensor chose by the manufacturer), the O2 sensor has finished its heating process once the signal returns to its initial.
This cycle is shown on the **O2Sens** indicator.

When the O2 sensor is hot, the green word **ON** appears on the left side of the indicator.
On the right side, the red word **MOD** appears when the O2 sensor modulator makes an adjustment on the O2 sensor signal, this happens when there is a value different than zero into the cell of the injection map actually used by the module.



The maps of injection and ignition are showed in the middle of the window.
For the injection the measurement unit is 1% of the injectors opening cycle (duty-cycle) and the maximum and minimum values are +30% and -10%. For the ignition the measurement unit is 0,5° angular degrees and the maximum and minimum values are +3° and -3°.

Map is divided in columns of throttle openings values and rows of rpm values.

The reading of the relative cells to the first one step rpm, to whichever value is put, starts from the established minimum value in the firmware (for the injection is 500rpm) to the value of the next step -1.

In the example brought back in figure:

first row 1500 is read from from 500 to 1999

the second from 2000 to 2449

the third from 2500 to 2999

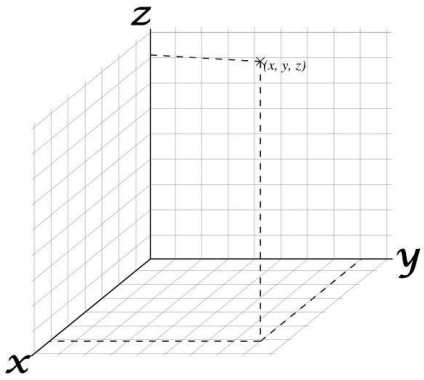
and so for the other rows and for the T.P.S. columns.

Rpm steps values can be modified: select the step that needs to be changed by clicking on it with the mouse left button and use **+** and **-** on keyboard to increase or decrease it.

RPM	0%	7%	14%	29%
1500	12	-4	-6	-6
2000	8	-5	-2	-7
2500	4	-6	-2	-12
3000	4	3	-5	-11
3400	3	3	3	-10
3800	2	9	8	-3
4200	0	7	7	0
4600	0	9	6	2
5000	0	4	5	-4
5400	0	2	2	-12
5800	0	3	-1	-16

Further adjustments are available in the feature **Map Configuration** in the form **RB Features** (see chapter **3.6.2**).

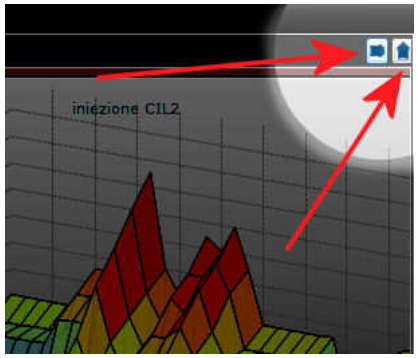
The right side of the window shows the 2D and 3D charts of the maps.



In the 3D charts (see example picture) the **x** axis shows T.P.S. steps, the **y** axis shows rpm steps and **z** axis shows values in the map cells.

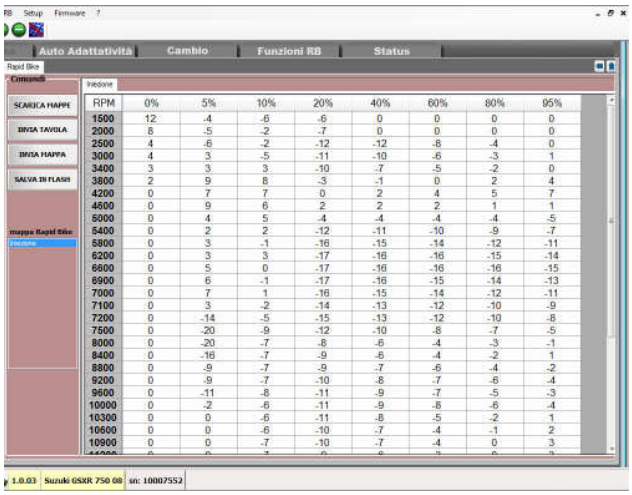
Click on the 3D chart with the mouse left button and move the mouse to change the postion of the chart.
Tick the checkbox **Rotate** to automatically rotate the 3D chart, tick the checkbox **Solid** to show a solid 3D chart or a vectorial 3D chart.

2D chart shows values of the selected column or the selected row of the map.
Horizontal axis shows the rpm values (if a column is selected) or the T.P.S. values (if a row is selected).
Vertical axis shows values in the map cells.

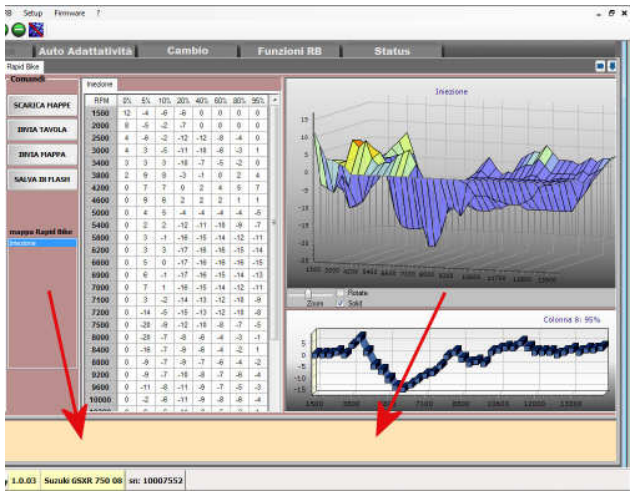


Click on the arrow at the top right toh ide the charts and enlarge the maps table.

Click on the next arrow to open a note field to write some details of the map.



Enlarged map visualization



Note field

3.2.1 Modify maps

Injection and ignition values, in the map cells, can be modified in two different ways: it is possible to increase or decrease values with **+** and **–** on keyboard (it will increase value of 1 unit at a time) or to write directly the value into the cell. Click on the **Edit** icon to switch between those two modalities.

Select more cells to modify them all together:

1. Select the first cell to modify by clicking on it with the mouse left button;
2. Keep the button pressed and move mouse to select other cells (it is possible to use arrow keys on keyboard and keep **SHIFT** button pressed);
3. Use **+** or **–** to change values or write the values to have the same value in the selected cells.

Map's values can be modified also acting on the 2D chart:

1. Click and keep pressed the mouse left button on the value that has to be modified.
2. Move mouse up or down to increase or decrease value.

3.2.1.1 Advanced modify functions

Move mouse cursor on the map table and right click on a cell to open the contextual menu.

In includes the following functions:

- **Cut**
- **Copy**
- **Paste**
- **Undo**
- **Redo**
- **Select All**
- **Set selection to zero**
- **Set map to zero**
- **Interpolation**

On the left side of the maps table there are the **Rapid Bike Commands**:

- **Get Map** (download maps from the module)
- **Send Map** (send all the maps opened in the software to the RAM memory of the module)
- **Save in Flash** (save permanently the map stored into the RAM memory of the module)

3.2.2 Save maps

To load and save in the module a map opened in the software, proceed as follow:

1. Click on **Send Map** to load the maps opened in the software.

2. When the software confirms the loading then click on **Save in Flash** to save permanently the maps into the module.

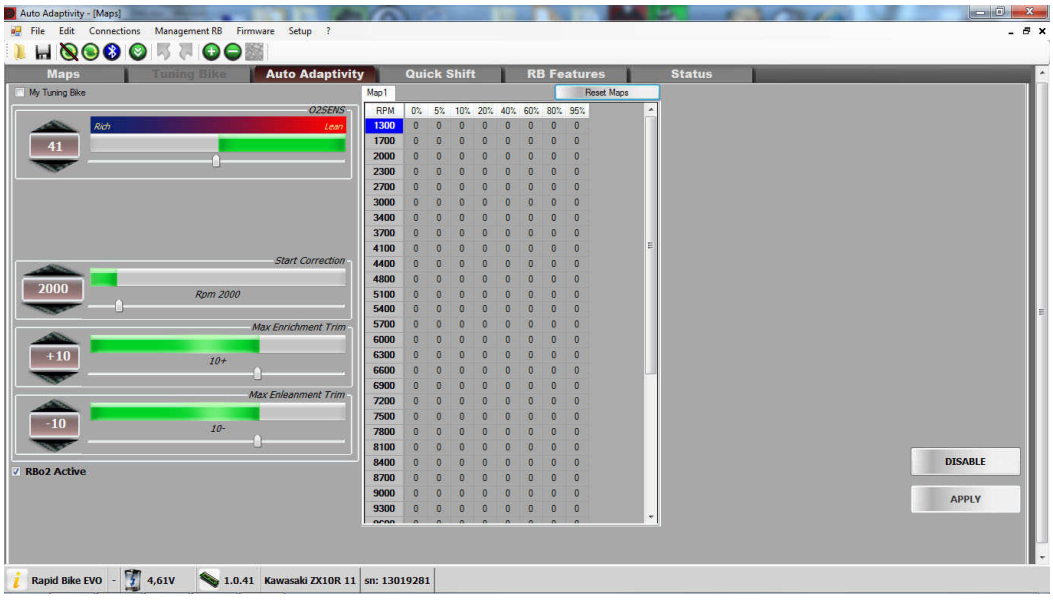
The RPM and T.P.S. steps of the map we are loading will overwrite the ones into the module.

3.3 Auto Adaptivity

This form is dedicated to the management of the Auto Adaptivity feature of the Rapid Bike Evo and Racing modules.

This feature allows the automatic adjustments of the injection map by means of the OEM O2 sensor signal reading or of the **My Tuning Bike** device.

3.3.1 With OEM O2 sensor



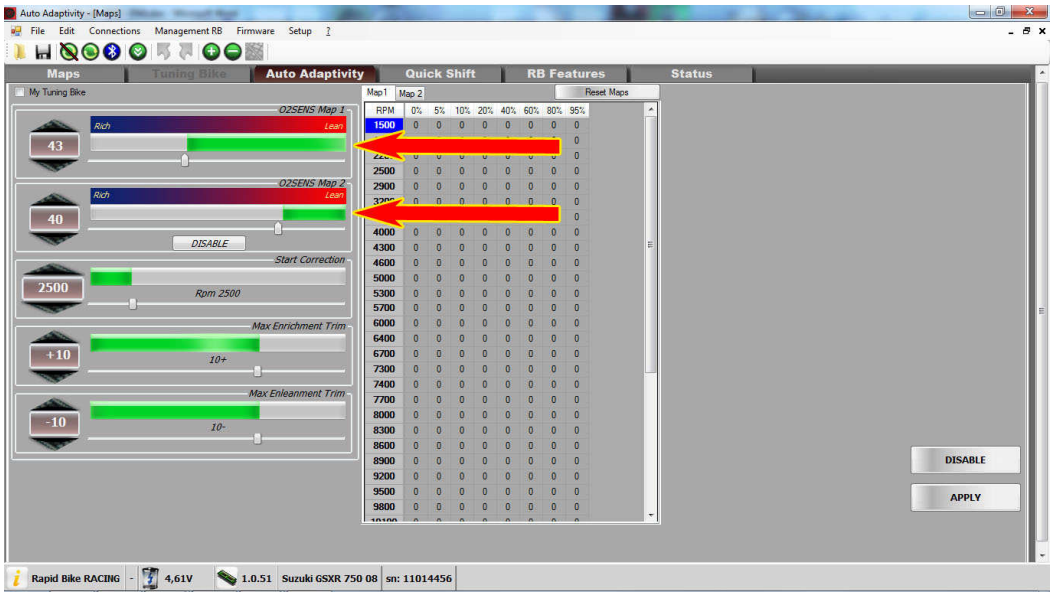
The left side of the windows contains the setting parameters of this feature; the right side of the window shows the map with the adjustments to the injection values.

During driving the injection adjustments will be saved into the auto adaptivity map, the injection signal of the OEM ECU will be modified by the auto adaptivity map together with the Rapid Bike Evo or Racing main map.

Auto adaptivity map can be erased by clicking on **Reset Maps**.

Auto adaptivity works only if the module is set with one map of injection or one map for each cylinder on two cylinders bikes equipped with two lambda sensors, with the switch map too.
This feature does not do adjustment on the first column of the map (otherwise it would correct also during deceleration).

If the maps switch is used, two trim maps with two different O2SENS targets (one for each position of the maps switch) will be available.



Usually the switch map is used to have a leaner map in a position of the switch and a richer map in the other position of the switch (so the same map can be loaded for both position of the switch, letting the Auto-Adaptivity feature to do the proper corrections to keep one richer and one leaner).

3.3.1.1 Settings

First setting, **O2SENS**, sets the fuel mixture target.

IMPORTANT: this setting must be changed only by testing the bike on a dyno bench with a gas analyzer system. This is the only way to proceed in order to verify which stoichiometric value the auto adaptivity gets and avoid regulations dangerous for the engine.

Start Correction sets the rpm value after which the feature will modify the injection values. The auto adaptivity is disabled when the minimum value of rpm is selected.

Max Enrichment Trim and **Max Enleanment Trim** set the limits (in positive and negative) of the trim map.

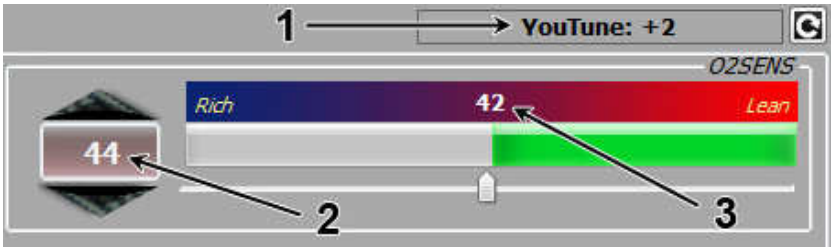
RBo2 Active says if the O2 sensor modulator system is active or not. That function must be disabled, by removing the checkmark, **exclusively** if the OEM O2 sensor has been remove because of the installation of a different OEM ECU like YEC, HRC, etc. or because of a reflash of the OEM ECU that disable the OEM O2 sensor(s).

Click on **Apply** to save the new settings.

3.3.1.2 Management with Youtune controller

The Youtune controller allows to enable/disable this feature and change, while riding, the target **O2Sens** within a range from +2 to -2. The value of the Youtune controller will be added or subtracted to the software setting.

The software shows what the value of the Youtune controller is (**1**) and what the resulting target (**2**) of software target (**3**) + Youtune is.



Clicking on button  updates the information according to the value set in the Youtune controller.

For further information please refer to the Youtune controller's specific manual

3.3.2 With My Tuning Bike device

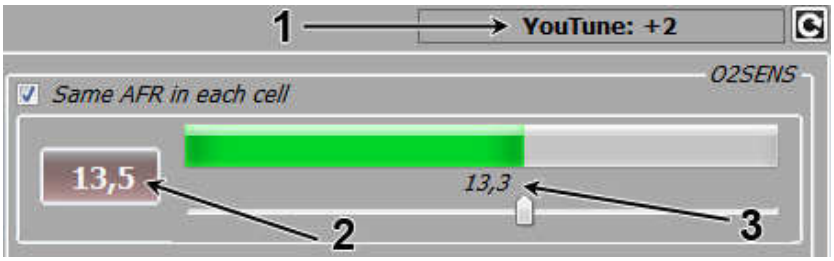
My Tuning Bike is an optional device that makes the auto-adaptivity feature read a wideband sensor instead of the OEM narrow band sensor.
The main advantage given by this accessory is a quicker and more accurate adaptation of the fuel mixture thanks to the possibility to set an A/F ratio value as target (impossible to do with the OEM O2 sensor).

For further information please refer to the specific manual

3.3.2.1 Management with Youtune controller

The Youtune controller allows to enable/disable this feature and change, while riding, the A/F ratio target within a range from +1,0 to -1,0 by steps of 0,1.
The value of the Youtune controller will be added or subtracted to the target set with the software, no matter whether the A/F ratio target is applied to the entire map or is different for each cell.

The software always shows what the value of the Youtune controller is (**1**) and, when the target is one for the whole map, it shows what the resulting target (**2**) of software target (**3**) + Youtune is.

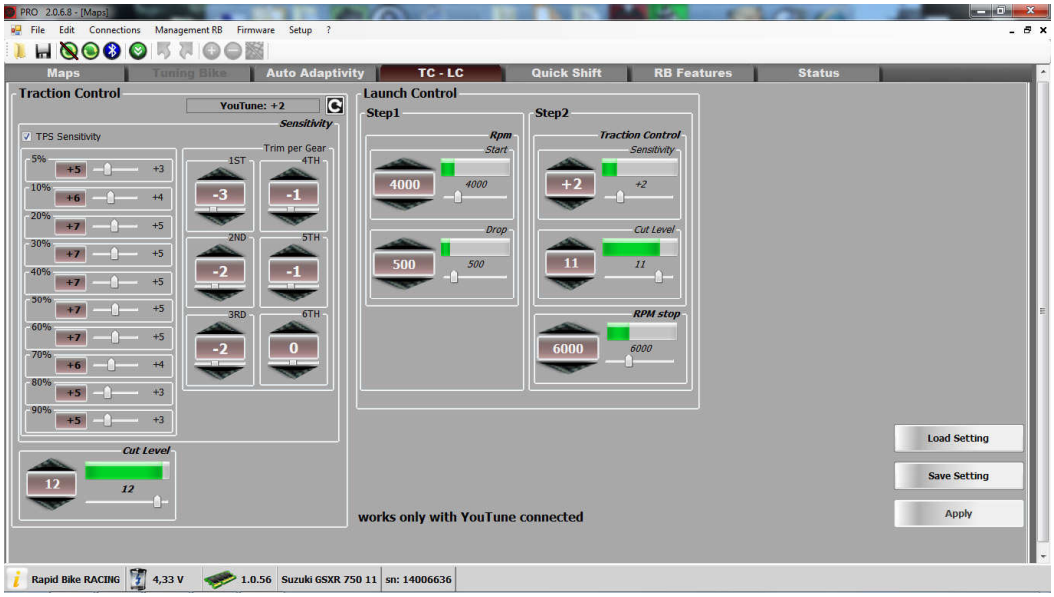


Clicking on button  updates the information according to the value set in the Youtune controller.

For further information please refer to the Youtune controller's specific manual

3.4 Traction Control – Launch Control (TC – LC)

This form is dedicated to the management of the Traction Control (TC) and Launch Control (LC) features of the Rapid Bike Racing module.



ATTENTION: These two functions, although always adjustable via software, are operational only when Youtune controller is installed.

3.4.1 Traction Control

Traction Control ensures optimal traction, cutting power excess and making the riding experience safer and easier in every condition.
Software sets automatically the standard settings for the specific bike model, and then every user will adjust, by trial and error, **Sensitivity** and **Cut Level** to satisfy their own needs and riding style.

"**Save Setting**" button saves all Traction Control and Launch Control settings into a file (with extension **.tlc**).

*It is recommended to <u>don't</u> overwrite the file contained in the default **tlc** files' folder.*

"**Load Setting**" button loads a **tlc** file stored in the local drive (standard file or a file with customized settings previously saved).

3.4.1.1 Sensitivity

This parameter sets how much the rear wheel has to spin to make the traction control intervene.

Sensitivity is TPS-based by default, uncheck "*TPS Sensitivity*" box to have one single value operating at all throttle openings.

TPS-based sensitivity has ten breakpoints, from the TPS value indicated up to the next (expect made for 5% breakpoint which goes from 0% up to 9% of TPS):

5%: from 0% to 9% TPS
10%: from 10% to 19% TPS
20%: from 20% to 29% TPS
30%: from 30% to 39% TPS
40%: from 40% to 49% TPS
50%: from 50% to 59% TPS
60%: from 60% to 69% TPS
70%: from 70% to 79% TPS
80%: from 80% to 89% TPS
90%: from 90% to 100% TPS

Range of adjustment is from **0** (traction control off) to **10** (highest sensitivity).
This allows turning traction control off for a certain throttle opening range.

If one single sensitivity value is used, then the range of adjustment is from **1** (lowest sensitivity) to **10** (highest sensitivity). Traction control could be turned off only by means of Youtune controller (see specific manual).

If the Rapid Bike module is connected to the gear position sensor, the sensitivity can be further adjusted according to gear ratio. Value set for each gear increase or decrease the sensitivity of each breakpoints (or main value in case TPS-based sensitivity is not used)

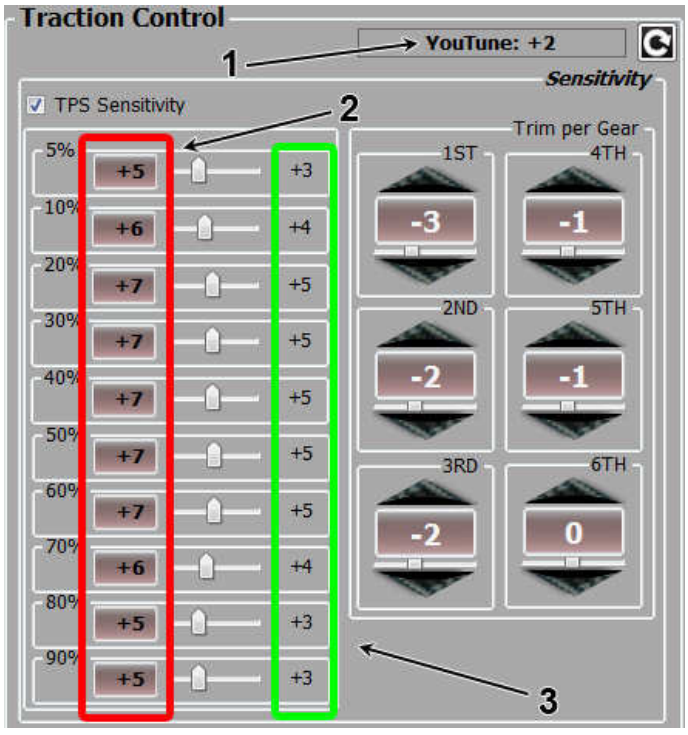
3.4.1.2 Cut Level

This parameter sets how much power must be reduced, by cutting injection, during traction control intervention.
Range of adjustment is from **1** to **13**: the higher the number, the higher the power reduction.

3.4.1.3 Management with Youtune controller

Youtune controller is an activation key for the traction control on Rapid Bike Racing module, in fact without this accessory, traction control is always **turned off**; furthermore, while riding it allows to turn on and off the traction control and modify the sensitivity, with a range of ± 5.

The software shows what the value of the Youtune controller is (**1**) and what the resulting sensitivity (**2**) of software setting (**3**) + Youtune is.



Clicking on button  updates the information according to the value set in the Youtune controller.

Overall sensitivity, defined by software setting + Youtune controller setting + gear setting, is always within a range from **1** to **10**.

Examples:

Software setting: **5** Youtune setting: **+5** Gear setting: **+5** Overall sensitivity: **10** (not 15)	Software setting: **5** Youtune setting: **-5** Gear setting: **-5** Overall sensitivity: **1** (not -5)

Sensitivity set **0** for a specific throttle opening turns traction control off for that breakpoint, regardless the Youtune controller setting or gear setting.

If Youtune controller is set to **OFF**, traction control is totally disabled.

For further information please refer to the Youtune controller's specific manual

3.4.2 Launch Control

Launch Control assists riders accelerating from a standing start, limiting the engine speed to a specific value, allowing it to accelerate once the rider releases the clutch.

In particular, the feature stops to limit the engine speed when it detects the typical rpm drop due to the release of the clutch.

This feature operates in two steps: first one limits engine speed, while the second controls the acceleration of the bike to avoid rear tyre spin.

3.4.2.1 Step 1

Step 1 limits the engine speed and ends when the rpm drops because the rider releases the clutch.

This step has two settings:

Start: sets the speed at which the engine must be limited.

Drop: sets how many rpm the engine speed must drop to stop limitation, allowing the bike to accelerate.

3.4.2.2 Step 2

Step 2 immediately starts once Step 1 finishes. During this phase, the acceleration of the bike is controlled, with specific traction control settings, to avoid rear tyre spin.

This step has dedicated **Sensitivity** and **Cut Level** settings of the traction control (see chapters **3.4.1.1** e **3.4.1.2**) and **RPM Stop** setting which sets at how many rpm Step 2 ends.

Once Step 2 ends, Rapid Bike module will use the general traction control setting (chapter **3.4.1**).

3.4.2.3 Management with Youtune controller

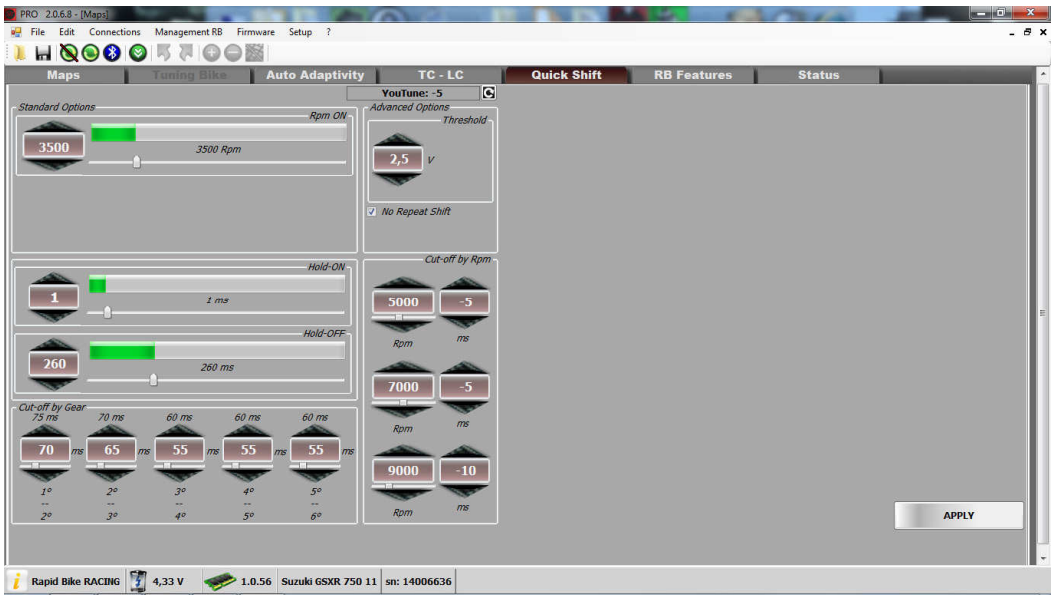
Youtune controller is an activation key for the traction control on Rapid Bike Racing module, in fact without this accessory, traction control is always **turned off**; furthermore, while riding it allows to turn on and off the traction control and modify the sensitivity, with a range of ± 5.

Youtune controller is an activation key for the launch control feature on Rapid Bike Racing module, in fact without this accessory, launch control is always **turned off**; furthermore, it shows the rpm value of **Start** setting allowing to turn on and off the feature, and showing the different steps in real time.

For further information please refer to the Youtune controller's specific manual

3.5 Quick Shift

This form is used to modify the quickshifter settings.



Settings are:

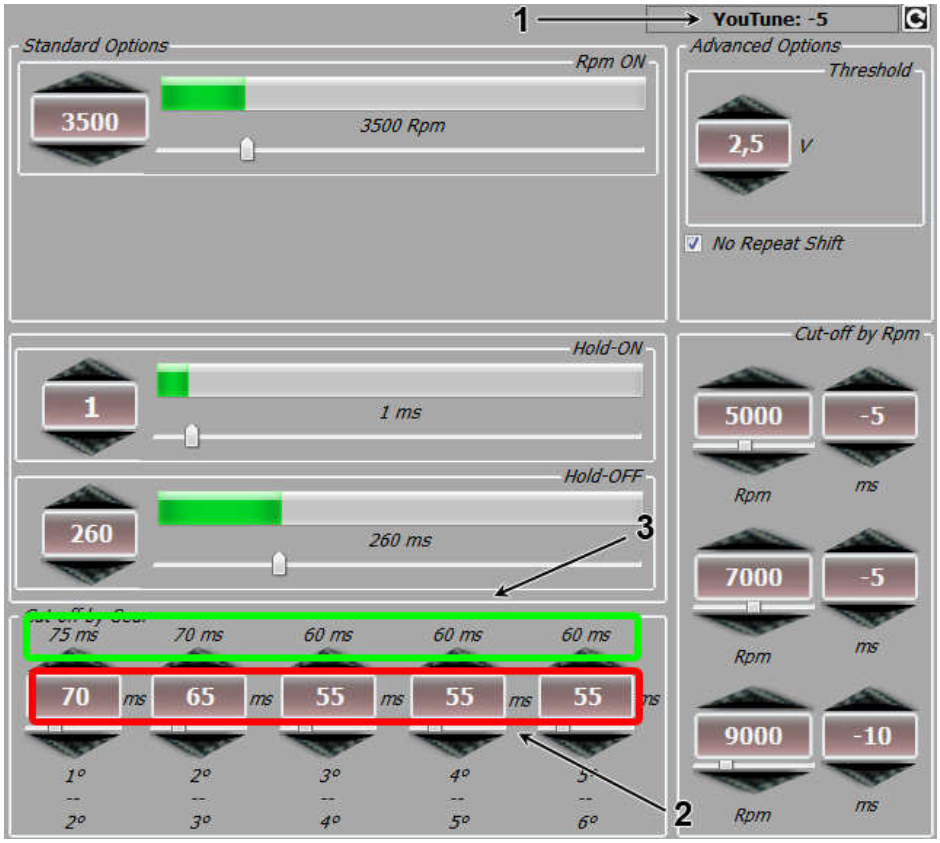
- **RPM On**, number of rpm after which the quickshifter will work (if the minimum value is selected the quickshifter feature will be disabled).
- **Cut-OFF**, time while the engine signal are cut by the Rapid Bike module to allow the gear up shift.
- **Hold-ON**, a filter, done by the module before the cut-off, to avoid the dangerous situation of a too lean fuel mixture in the cylinder when the injection signal is cut. For values higher than 0 ms the module will wait the end of the injection to cut the injection signal. With 0 ms the injection signal will be cut as soon as the upshift signal is received (dangerous situation).
- **Hold-OFF**, a filter (made by the module for the selected time) that avoids false gear up shift signals after a real up shift.
- **Cut-off by Gear**, set the cut-off time for every gear up shift (only for applications that include the gear position sensor reading).
- **Cut-off by Rpm**, allow using different cut-off time, in three different ranges, according to the rpm by selecting a correction factor for the main cut-off time.

- **Threshold**, set the voltage of the quickshifter sensor under which the module will cut the engine signals.
- **No Repeat Shift**, if the checkbox is ticked it won't enable a gear up shift until the gear lever comes back to its rest position. In this way, driving into a circuit, it will be possible to keep the lever pushed (or pulled, depending by the up shift sense) without having other cut-off (that would happen once Hold-OFF time ends).

3.5.1 Management with Youtune controller

Youtune controller allows, while riding, to turn on and off this feature, and modify the Cut-off setting with a range from +20ms to -19ms. This adjustment is applied when the Cut-off is both set as single and for each gear.

The software shows what the value of the Youtune controller is (**1**) and what the resulting Cut-off value (**2**) of software target (**3**) + Youtune is.



Clicking on button  updates the information according to the value set in the Youtune controller.

For further information please refer to the Youtune controller's specific manual

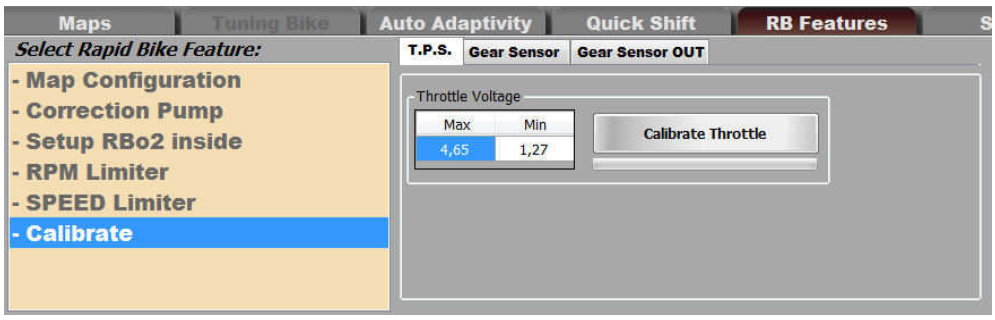
3.6 RB Features

This form contains settings for every additional feature of the Rapid Bike modules. Depending on the connected module the software shows only the available features.

3.6.1 Calibrate

Set the T.P.S. voltage and the Gear Position Sensor input and output voltage.

3.6.1.1 T.P.S. Calibration



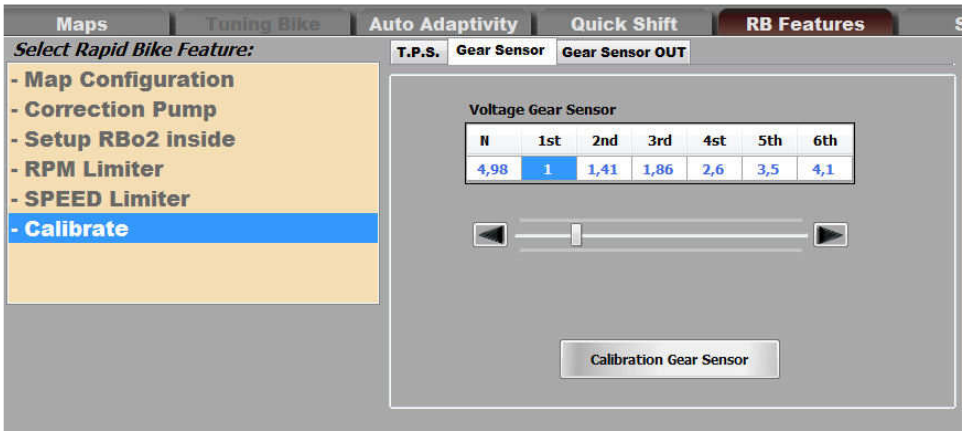
T.P.S. must be calibrated when, for a wrong default setting, there is a difference between the full throttle opening and what is shown on the software.

To calibrate T.P.S. of bikes without ride-by-wire proceed as follows:

1. Turn on the engine.
2. Click on **Calibrate Throttle**.
3. Open full throttle and release to acquire maximum and minimum T.P.S. voltage values.
4. Click again on the button to stop process.
5. Click on **Apply** to save the new settings.

T.P.S. calibration of bikes with ride-by-wire must be performed on the dyno bench because the bike must be accelerated up to the rpm limiter, with a high gear engaged and rear wheel moving.

3.6.1.2 Gear Sensor Input Calibration



The gear position sensor calibration is needed when the gear used and the one shown on the software are not the same.

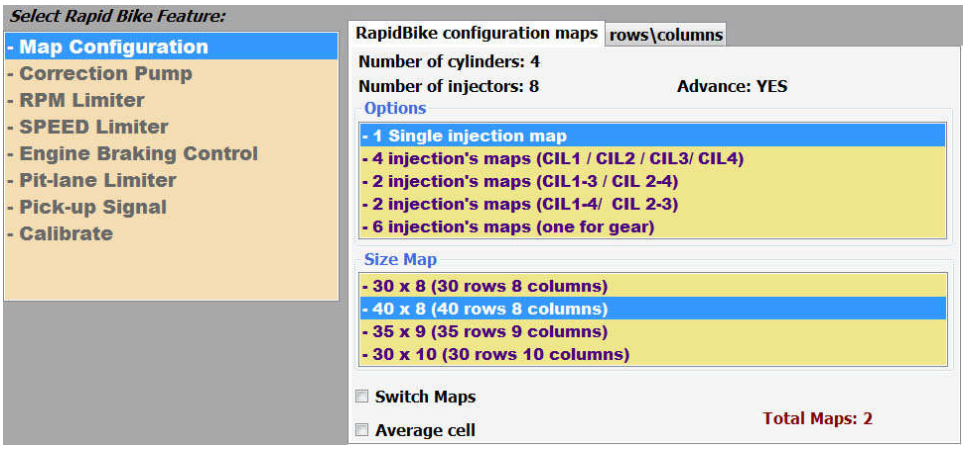
To calibrate the gear position sensor proceed as follow:

1. Turn on the engine.
2. Click on **Calibration Gear Sensor**.
3. Follow the onscreen instructions.
4. Click again on the button to stop process.
5. Click on **Apply** to save the new parameters.

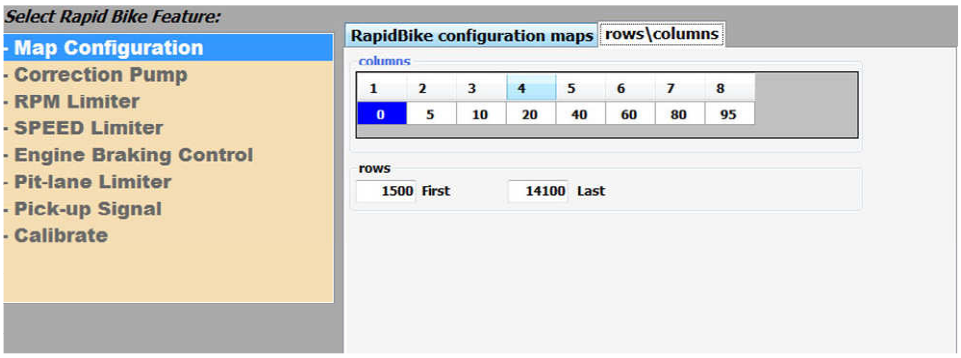
3.6.2 Map Configuration

Allows modifying some parameters of the maps stored into the module. It is divided in two sections:

- **Rapid Bike configuration maps**: depending on the connected module it is possible to select the number of injection maps and if enable or disable the switch map.
    - **Size Map**: set the resolution columns/rows of the maps.
    - **Average cell**: the module will do an interpolation of the value in the cells while moving between adjacent cells. In this way the transition between two cells with very different values is smoothest.



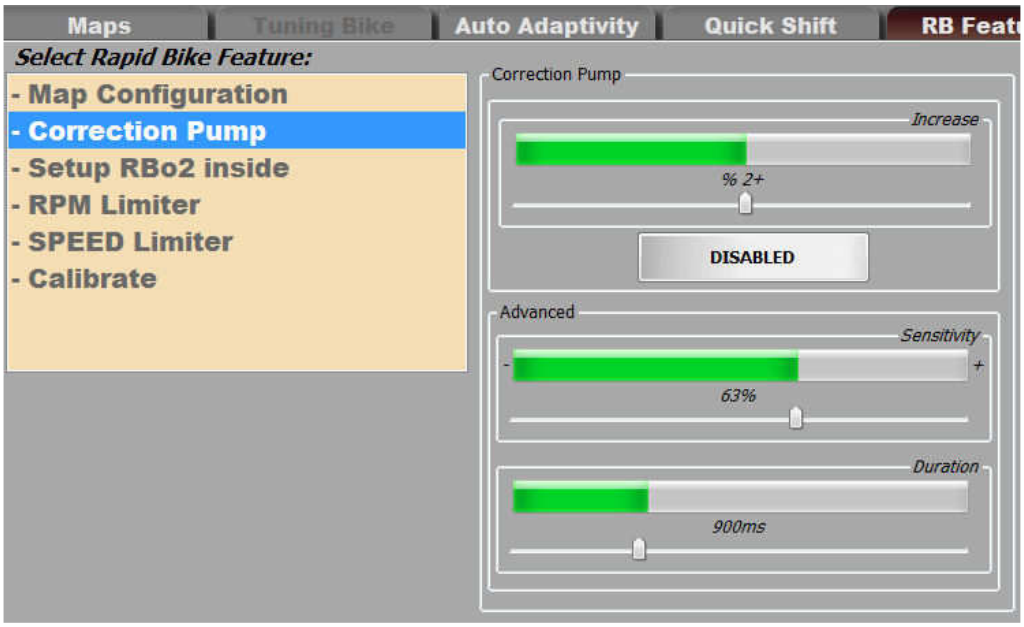
- **Rows/columns**: change the T.P.S. steps for each column and the range of rpm in the map (maximum and minimum value of rpm).



Click on **Apply** to save new settings.

3.6.3 Correction Pump

This feature can add or remove a certain amount of fuel and/or ignition (only with Rapid Bike Racing) to the value already set in the map when throttle is opened.



Settings are:

- **Increase Injection**: set the amount of fuel to add/remove when the feature intervenes.
- **Increase Ignition** (only for Rapid Bike Racing): set the degrees of ignition to add/remove when the feature intervenes.
- **Sensitivity**: set the activation according to the throttle opening. With low values the feature intervenes for wide and quick openings, for high values the feature intervenes for small and slow openings.
- **Duration**: sets for how long the feature should add (or remove) fuel when it intervenes.

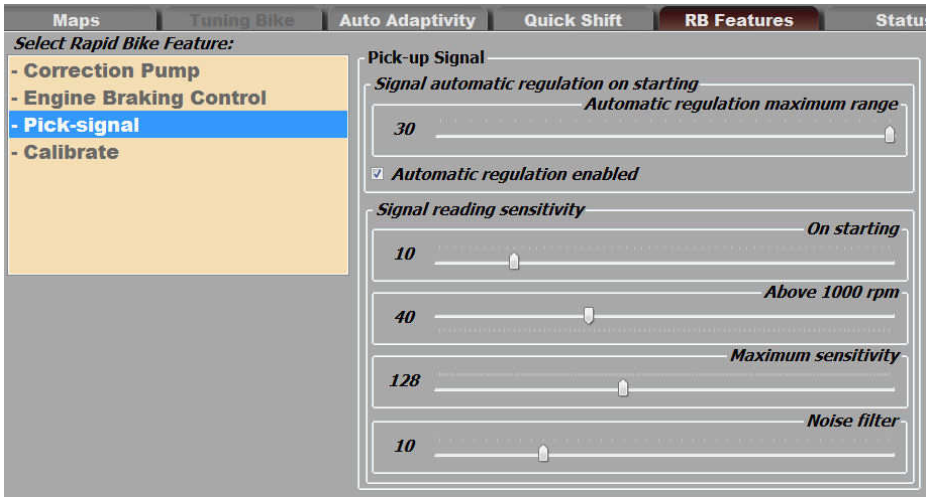
<u>Please note that the settings of these function depends very much on the sensitivity and driving-style of the driver, so there is not an ideal one.</u>

To help the regulation of the pump there is a graphic indicator, in the form **Maps** near the display **T.P.S.**, which appears when the pump is active.

3.6.4 Pick-up signal

Allows changing the crankshaft sensor signal reading sensitivity, useful when this signal is too strong or too weak.
In both cases the most common defects can be summarized in:

- Difficult engine starting
- Sudden ignition cuts while engine is running



The settings for the crankshaft sensor signal reading sensitivity are the following:

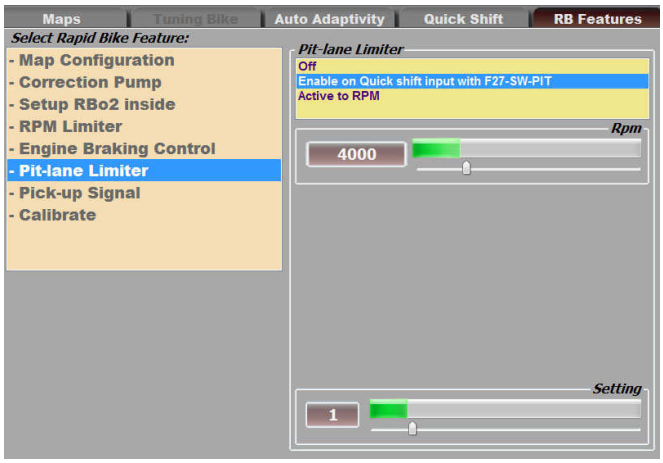
- **Signal automatic regulation on starting**: the Racing module is able to adjust automatically the sensitivity of the crankshaft sensor signal reading during engine starting.
  - **Automatic regulation maximum range**: it set the maximum range in which the Racing module can increase or decrease the reading sensitivity.
  - **Automatic regulation enabled**: it activate the automatic regulation of the sensitivity. If disabled the value used during engine start it will be the one set in the **On starting** setting.
- **Signal reading sensitivity**: setting of the crankshaft sensor signal reading sensitivity.
  - **On starting**: reading sensitivity when engine starts. Value moves from 0 (highest sensitivity) to 60 (lowest sensitivity).
  - **Above 1000 rpm**: reading sensitivity used when engine exceeds 1000 rpm.
  - **Maximum sensitivity**: highest value of sensitivity that the module can reach.
  - **Noise filter**: setting for the filter of crankshaft sensor signal noises.
  - **Tolerance**: changes the dimension (in degrees) of the crankshaft wheel's hole (usually used only for BMW S1000RR).

Adjust the settings and then click on **Apply** to save them into the module.

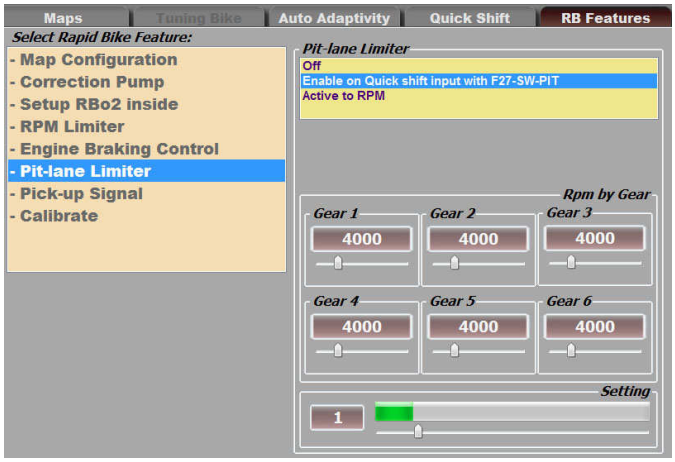
IMPORTANT: the parameters of all these settings are adjusted during development to ensure a proper functioning.
Changes of these parameters are therefore required ONLY if there are any problems related to the engine speed signal after installing the unit.

3.6.5 Pit-lane limiter

This feature is used to put an rpm limiter lower than the stock one that can be activated with a switch.
The main purpose of this feature is to have a speed limiter for the pit-lane: as Rapid Bike has no speed signal input, the correct way to set this feature is to select the rpm value that gives the maximum speed allowed in the pit-lane, using a certain gear.



The Pit Lane limiter can be used with Rapid Bike Racing module using a specific switch cod. F27-SW-PIT.
If there is no connection to the Gear Position Sensor, use the cursor to set the rpm value (if minimum value is selected the feature will be disabled) and then select **Enable on Quick shift input with F27-SW-PIT**.



If there is the connection to the Gear Position Sensor, use the cursors to set rpm values for each gear ratio and then select the activation option.

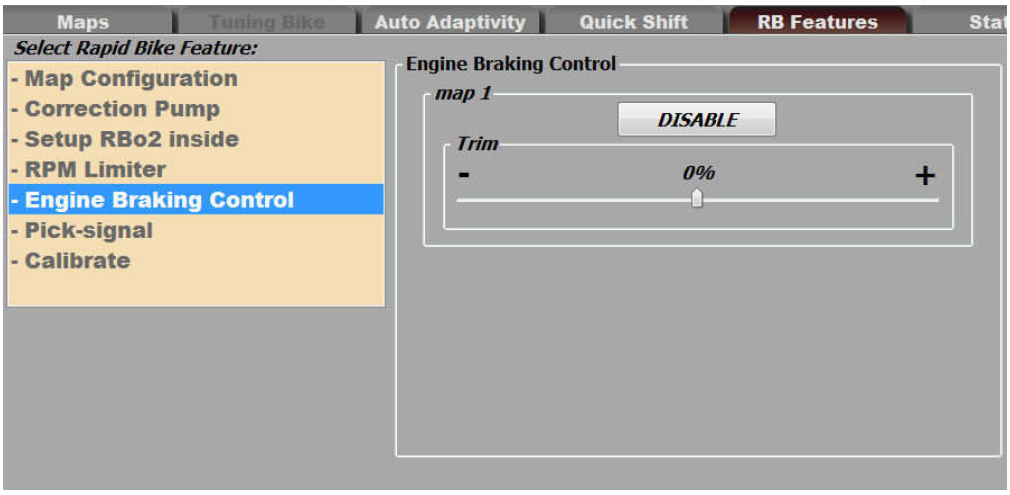
Setting allows choosing different managements of the power cut from the Rapid Bike module. The higher the value, the lighter the power cut.

Click on **Apply** to save the new settings.

3.6.6 Engine braking control

WARNING: this feature is adjustable also for Rapid Bike Evo module, but it works exclusively with Youtune controller installed.

Rapid Bike Racing is able to adjust the engine braking by managing the injection during deceleration (throttle closed).
On most bikes the ECU closes completely the flow of fuel to the injectors until the engine speed is below 3000-4000 rpm.
When the engine braking control is enabled, the Rapid Bike module handles the injectors giving a certain amount of fuel, this will reduce the braking force generated by the engine.



Click on the button **Enable/Disable** to activate and deactivate the function. When enabled it is set with the default value stored in the firmware (it is the same amount of fuel usually injected at idle).
Moving the cursor it is possible to increase (**+**) or reduce (**-**) the braking force of the engine during cut-off. The default value set in the firmware is represented by the 0% and it already reduces the engine braking.
If the RB kit has the connection to the Gear Position Sensor it is possible to set a different value of engine braking for each gear ratio.

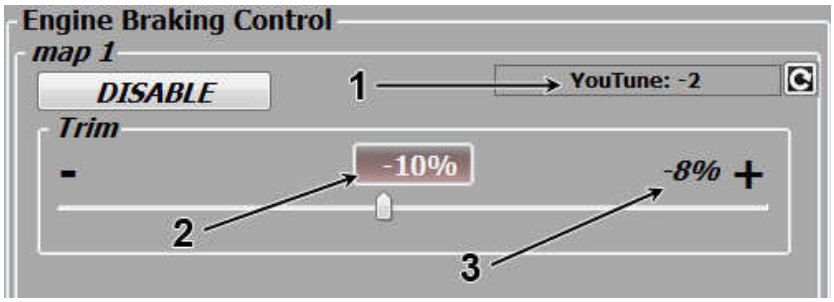
The option **Disable engine braking management** sets the rpm value at which the feature stops to manage the injection (only if it is set higher than the rpm at which the ECU turns the injectors on again). If it is set as **Disable** the feature stops as soon as the ECU starts again to give fuel to the injectors.

Click on **Apply** to save the new settings.

3.6.6.1 Management with Youtune controller

Youtune controller allows modifying the software's setting, when it's both single and different for each gear ratio, with a range from +20% to -19%.
When this feature operates with different setting for each gear ratio, the value of Youtune controller is added or removed to each of them.

The software shows what the value of the Youtune controller is (**1**) and what the resulting value (**2**) of software setting (**3**) + Youtune is.

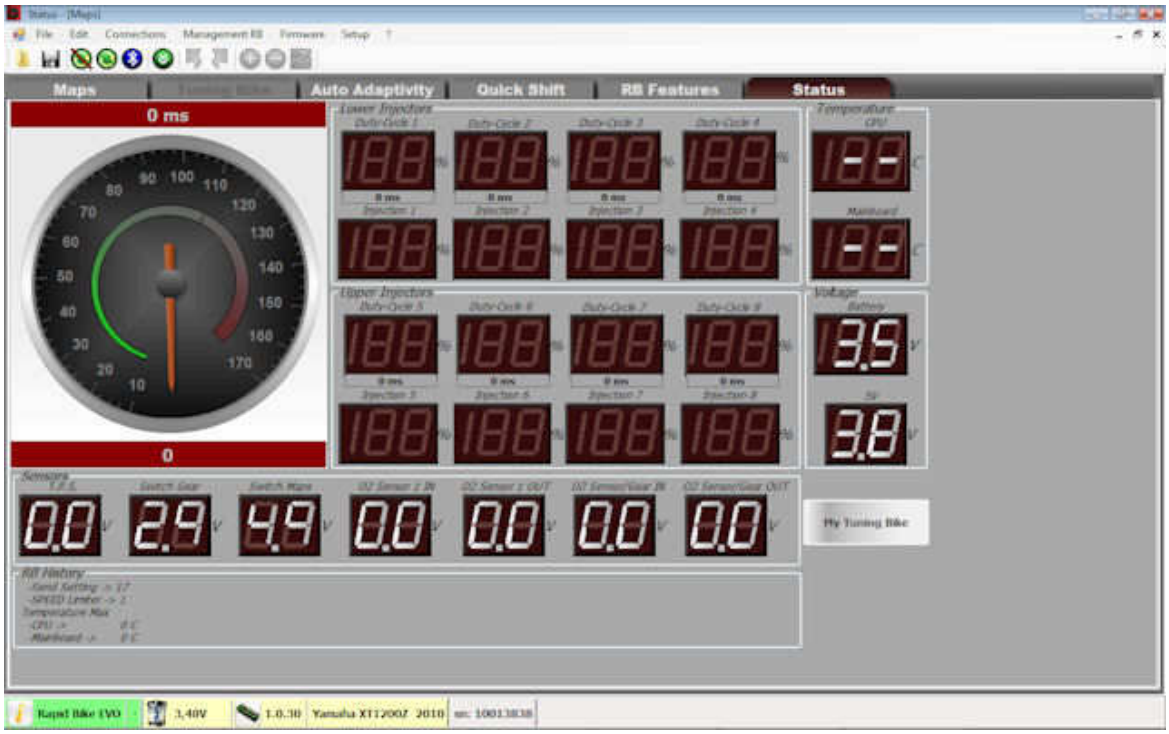


Clicking on button  updates the information according to the value set in the Youtune controller.

For further information please refer to the Youtune controller's specific manual

3.7 Status

In this form it is possible to check some parameters of the system regarding the Rapid Bike EVO module.

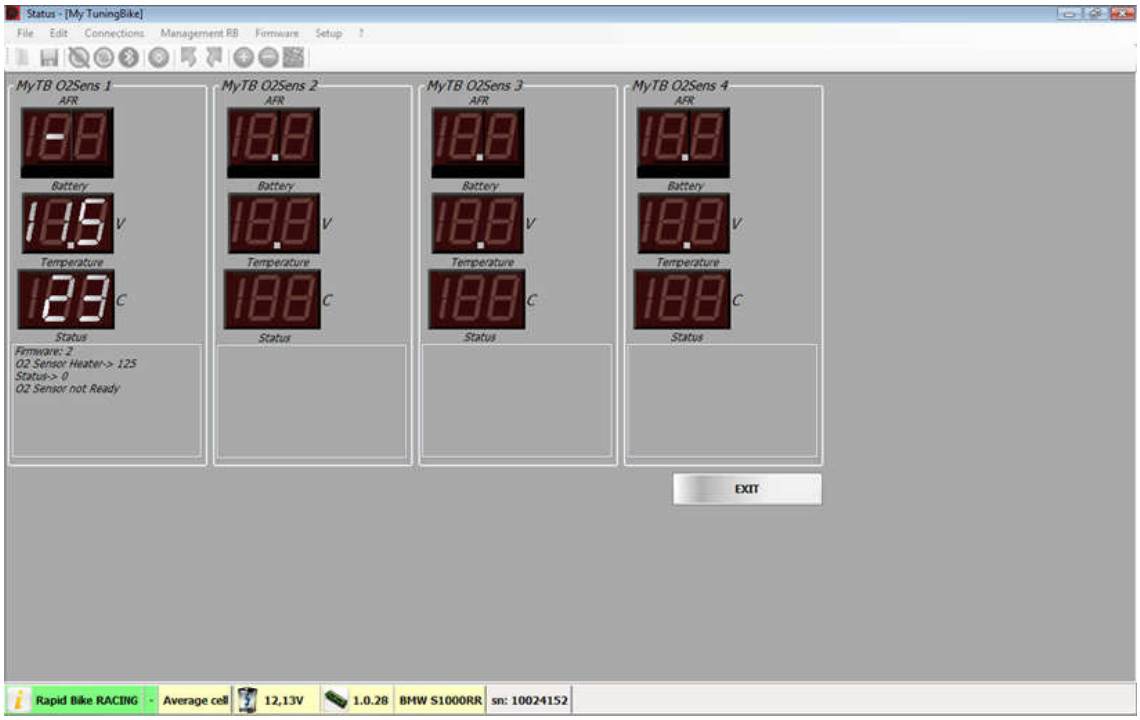


It is possible to check:

- Engine's Rpm in r/min and milliseconds (ms).
- Duty cycle and injection time (ms) for each injector.
- Amount of adjustment for each injector (for nonzero map's value).
- Sensors' voltage
    - T.P.S.
    - Switch Gear
    - Switch Maps
    - O2 Sensor 1 Input/Output
    - O2 Sensor 2 or Gear Position Sensor Input/Output.
- Feeding Voltage
    - Battery
    - 5v
- Operating and maximum temperature
    - CPU
    - Mainboard
- History of the module:
    - Code of the USB dongle that has done the last unlock of the maps
    - Counter of unlocks
    - Counter of programming (change model of the motorcycle)
    - Maximum rpm limiter value ever set
    - Counter adjustments of the Engine braking control settings
    - Counter adjustments of the Pit-lane limiter settings
    - Maximum CPU temperature ever reached
    - Maximum mainboard temperature ever reached

Clicking on the My Tuning Bike button will open its Status window that shows:

- A.F.R.
- Feeding voltage
- Device temperature
- Status:
  - Firmware version
  - O2 sensor heater (125 means cold sensor, it decreases while sensor is heating)
  - Status (0 = device off, 1 = device on and no errors, n>1 = errors)
  - O2 sensor state



3.8 Backup Evo and Racing modules

Evo and Racing modules allow users to do a complete backup of the data stored in the memory.
This backup creates a file on the hard disk that contains all maps and settings of the module.
The backup is related to:

- Serial number of the module
- Programming of the module (motorcycle model) so it can't be loaded into another module or on the same module programmed for another motorcycle.

Click on **Backup RB** in the **Management RB** menu to save the backup into a .bke file in the folder **..\My Documents\RapidBike**.
Click on **Restore backup RB** in the same menu to load the backup file previously saved into the module.

The backup is also suggested when the map are going to be unlocked (e.g. to load other maps provided with the software) in order to go back to the starting configuration in any time.

4. Services

4.1 Upgrades:

- Automatic upgrades for software and firmware by means of the utility **Check DSupdate**. This utility will check for new upgrades and it will advise with a pop-up window if something is available for the download (it requires an Internet connection).

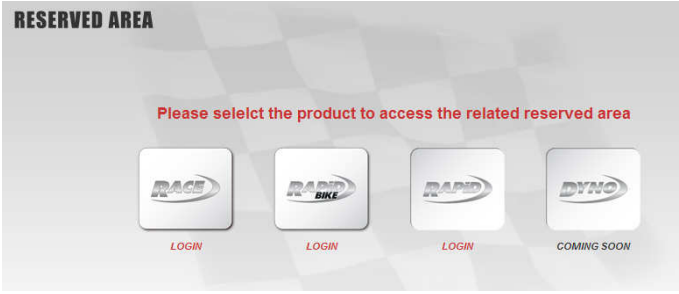
4.2 Website reserved area:

On the website www.rapidbike.it it is possible to register into the reserved area.

In the homepage there is the link for the reserved area.

Click on the banner showed in the picture.

In the next page select “Rapid Bike” logo

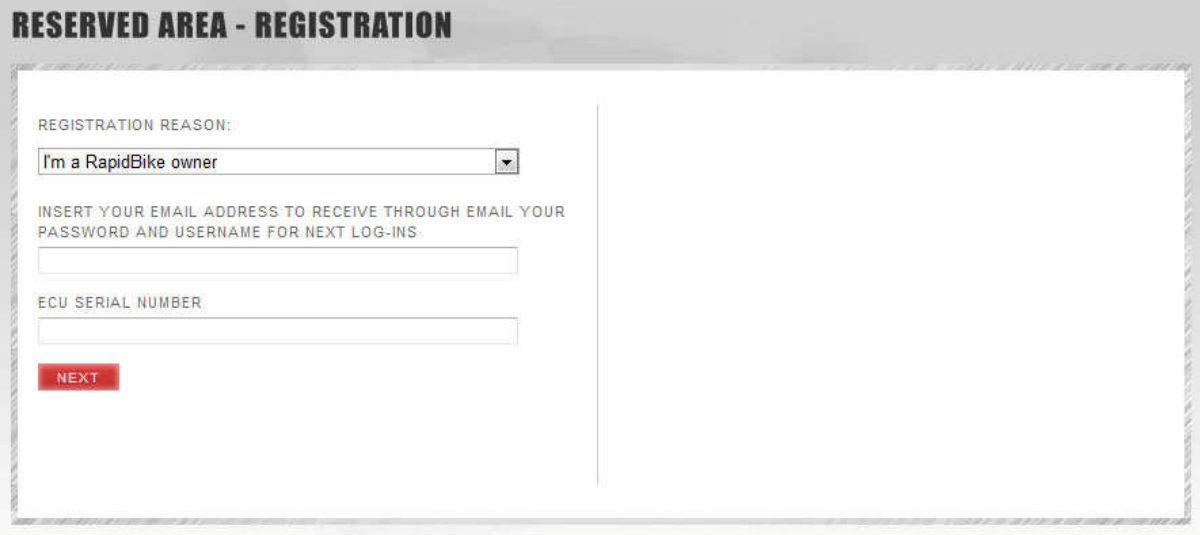


Click on “Register here”.

Select the registration reason in the next window.

Select “I’m a RapidBike owner”.

- Fill the fields with an e-mail address and the serial number of the RapidBike module (the serial number can be found on the card in the back of the module).



- An e-mail with the password will be automatically sent to the address used during registration..

- In the reserved area it will be possible to download the RapidBike software (in the homonymous section) and check the installation handbooks in the “Documentation” section.

Notes:

Notes:

Dimsport Srl
Zona Industriale Madonnina - Loc. San Iorio
15020 SERRALUNGA DI CREA (AL) - ITALY
T (+39) 0142.9552 F (+39) 0142.940094
www.dimsport.it

RapidBike
ASSISTENZA TECNICA – TECHNICAL SUPPORT
Tel. (+39) 0142.9552
E-mail: support.rapidbike@dimsport.it

UFFICIO COMMERCIALE – COMMERCIAL DEPT.
Tel. (+39) 0142.9552
E-mail: info.rapidbike@dimsport.it

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