



# **MASTER PRO**

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*PROFESSIONAL SOFTWARE  
FOR RAPID BIKE MODULES*

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**INSTALLATION AND USE**

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## 1. System Requirements

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- Windows XP SP3 32-64 bit with 512 MB RAM (recommended Windows 7 or further with 1GB RAM)
- Minimum screen resolution 1024x768 with 256 colours
- 2 USB-port
- CD-Rom reader for the installation
- 200 MB free space on local drive
- Fast ADSL Internet connection activated
- Internet Explorer 6 or further

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 fitting the requirements stated above.

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## 2. Installation

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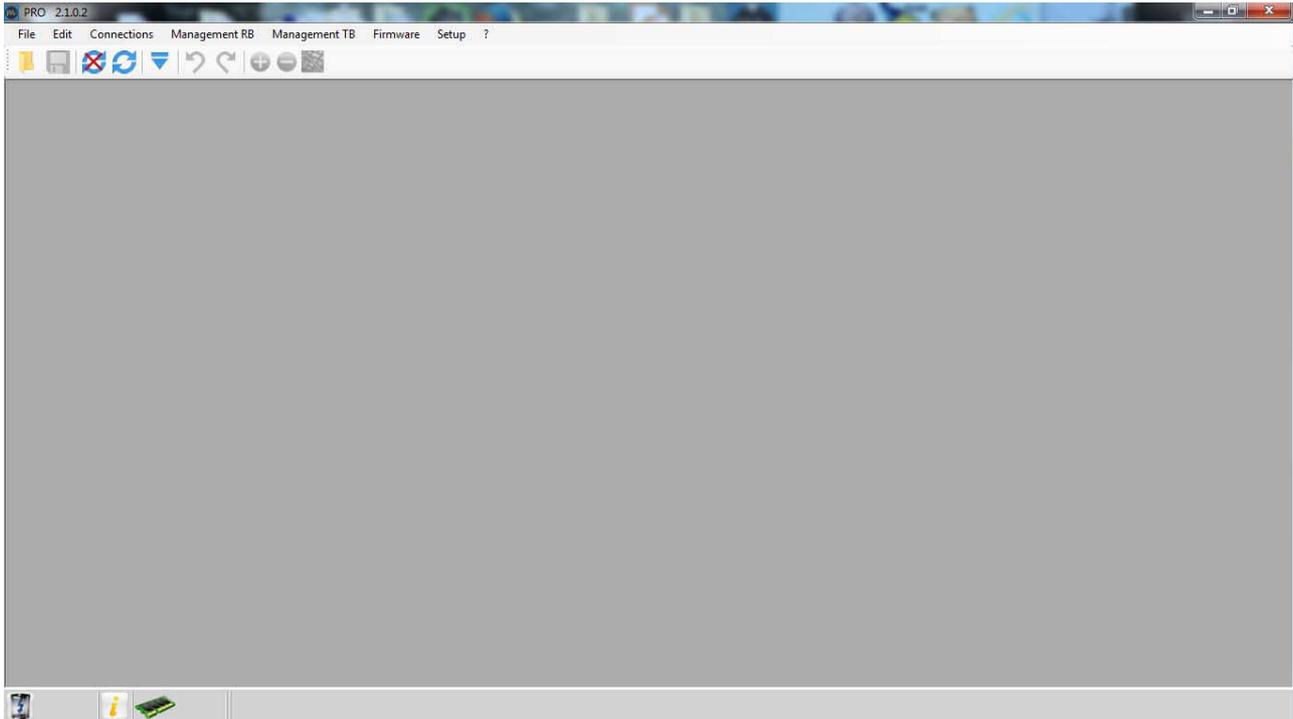
1. Be sure that no Rapid Bike devices (USB adapter or USB license key) are plugged in the computer.
2. Uninstall all the Rapid Bike software and drivers actually installed.
3. Insert the CD in the drive.
4. If nothing happens, open the CD's content in Windows Explorer and double-click the file **setup.exe**.
5. Follow the wizard instructions.
6. Extract the CD from the drive once the Rapid Bike Master PRO installation is done.

### 3. The Software

#### 3.1 Overview

Plug the USB dongle and double-click on the icon  to start the software (software will not start if the USB dongle is not plugged).

**WARNING: if other USB dongles are plugged, software might not start.**



Main window

When the software is started for the first time after the installation, it will require an e-mail address for the activation. 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 menu **Setup** it is possible to enable or disable the automatic connection to the module, selecting the option **Get map at startup**.

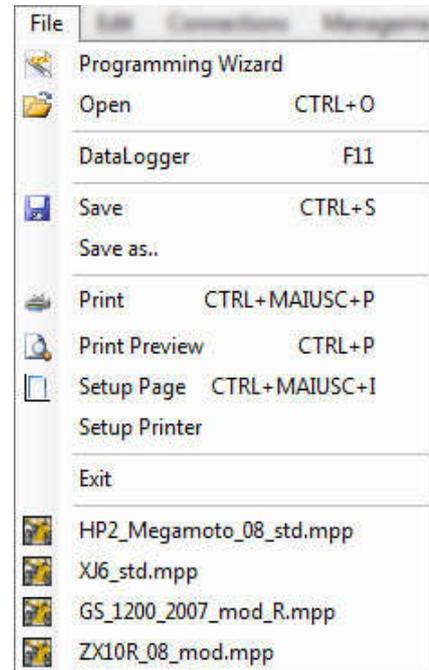
At the top of the main window there is the Menu bar:

- |      |      |             |               |               |               |          |       |   |
|------|------|-------------|---------------|---------------|---------------|----------|-------|---|
|      | File | Edit        | Connections   | Management RB | Management TB | Firmware | Setup | ? |
|      | ↑    | ↑           | ↑             | ↑             | ↑             | ↑        | ↑     | ↑ |
| 1.   | 2.   | 3.          | 4.            | 5.            | 6.            | 7.       | 8.    |   |
| File | Edit | Connections | Management RB | Management TB | Firmware      | Setup    | ?     |   |

Each menu will be described in detail below:

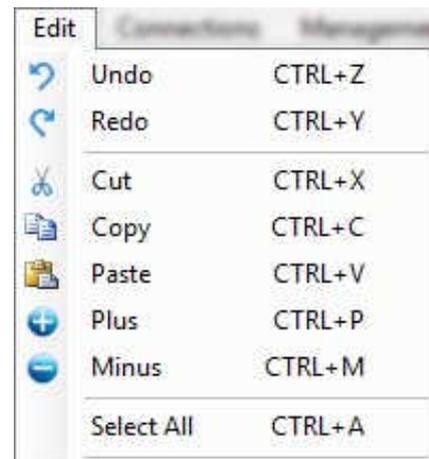
- **File menu**

- **Programming Wizard:** wizard for programming of Rapid Bike Evo and Rapid Bike Racing modules.
- **Open:** open a Rapid Bike map (\*.mpp) or a Tuning Bike project (\*.mqd).
- **DataLogger:** open a new window for the management of the Tuning Bike's DataLogger feature.
- **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.
- **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, the recent files opened with the software are listed.



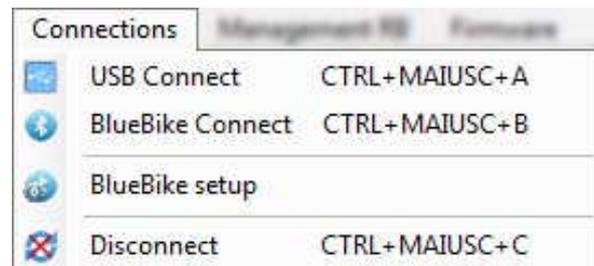
- **Edit menu**

- **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.



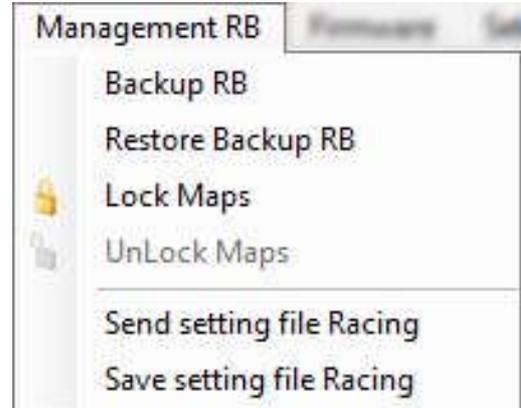
- **Connections menu**

- **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.



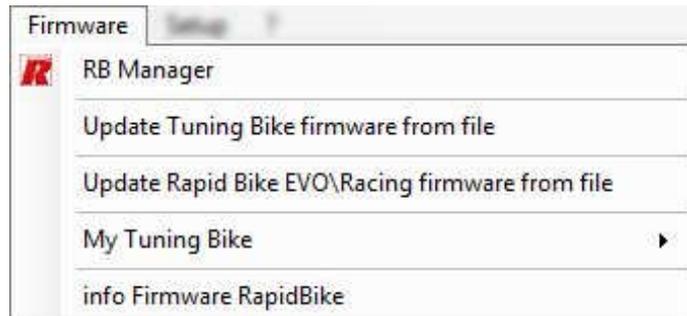
- **Management RB menu**

- **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 serial number of the module (see chapter 3.8).
- **Restore backup RB:** it loads a backup, previously saved, into the module. It won't be loaded if the module is programmed for a different bike.
- **Lock Maps:** it locks the maps of the Rapid Bike so they can not be viewed or modified by someone else (see chapter 3.2.3).
- **UnLock Maps:** unlock the maps of the module.
- **Send setting file Evo / Racing:** send the settings of the **RB Features, Auto adaptivity and 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 features into the forms **Auto adaptivity, Quick shift and RB Features**. In this way it will be possible to load the same settings on other modules programmed for the same motorcycle.



- **Firmware menu**

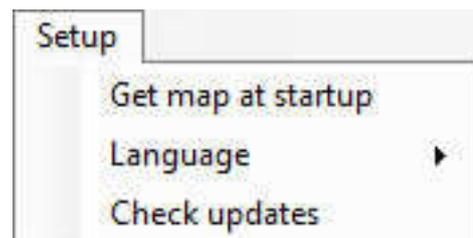
- **RB Manager:** start the Rapid Bike Manager software for the firmware programming of Rapid Bike 1 – 2 – 3 modules.
- **Update Tuning Bike firmware from file:** update the firmware of the Tuning Bike module by selecting the newer file previously downloaded by the software.
- **Update Rapid Bike EVO\Racing firmware from file:** update the firmware of Rapid Bike EVO and Racing modules by loading a file \*.flx present on the computer.
- **My Tuning Bike:** update the My Tuning Bike module's firmware. It is possible to update individually up to four modules connected to the same Rapid Bike module.
- **Info Firmware Rapid Bike:** detailed information about the firmware loaded into the Rapid Bike module.



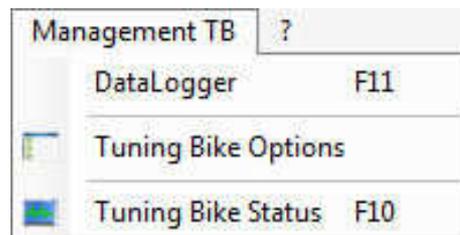
The latest firmware's files for the Rapid Bike Evo and Racing modules are automatically installed on the computer with the automatic updates of the Rapid Bike system (an Internet connection is required)

- **Setup menu**

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

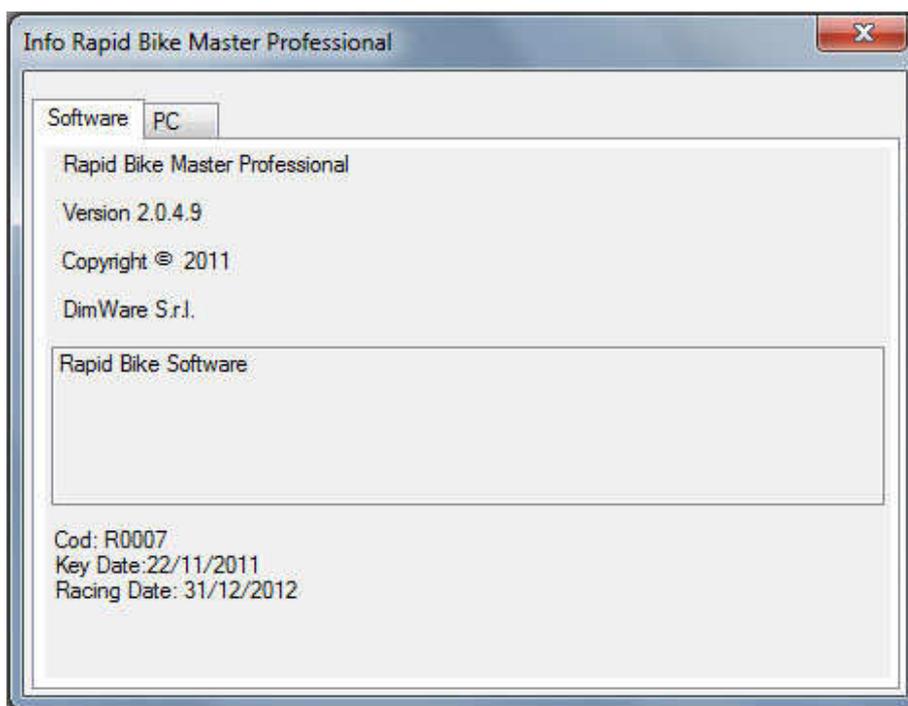


- **Management TB menu** (only if Tuning Bike module is connected)
  - o **DataLogger:** open a new window for the management of Tuning Bike's DataLogger feature.
  - o **Tuning Bike Options:** modify Tuning Bike system settings.
  - o **Tuning Bike Status:** check system parameters and the errors status.



For further information read the specific manual of the Tuning Bike system

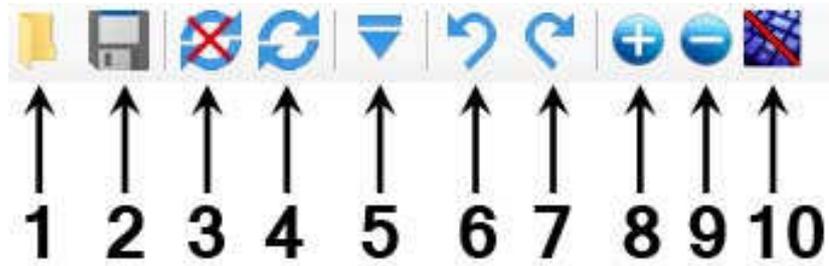
- **Menu ?**
  - o **About:** shows a window containing some information like
    - Software version
    - **Cod:** USB key code
    - **Key Date:** Actual date read from the USB key's calendar (*in case date is wrong please contact the technical support*)
    - **Racing Date:** Expiry date of the license for Rapid Bike Racing programming



- The tab **PC** shows some information 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. Get map
6. Undo
7. Redo
8. Plus
9. Minus
10. 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:

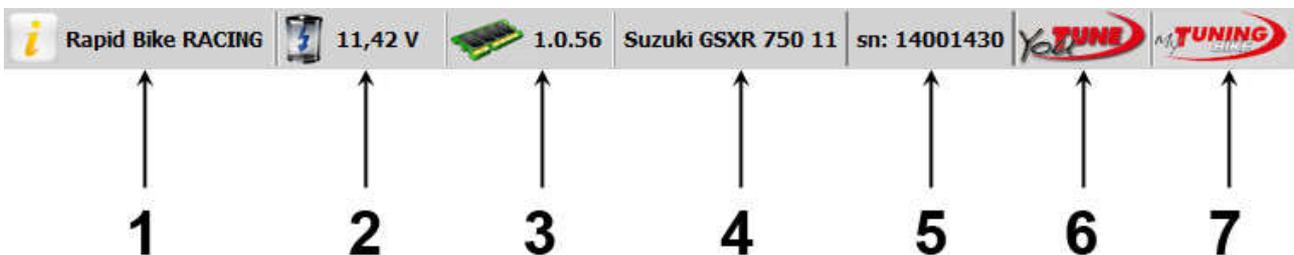
- Maps
- Tuning Bike
- Auto Adaptivity
- TC - LC
- Quick shift
- RB Features
- Status



Only some form will be available depending by the module actually connected

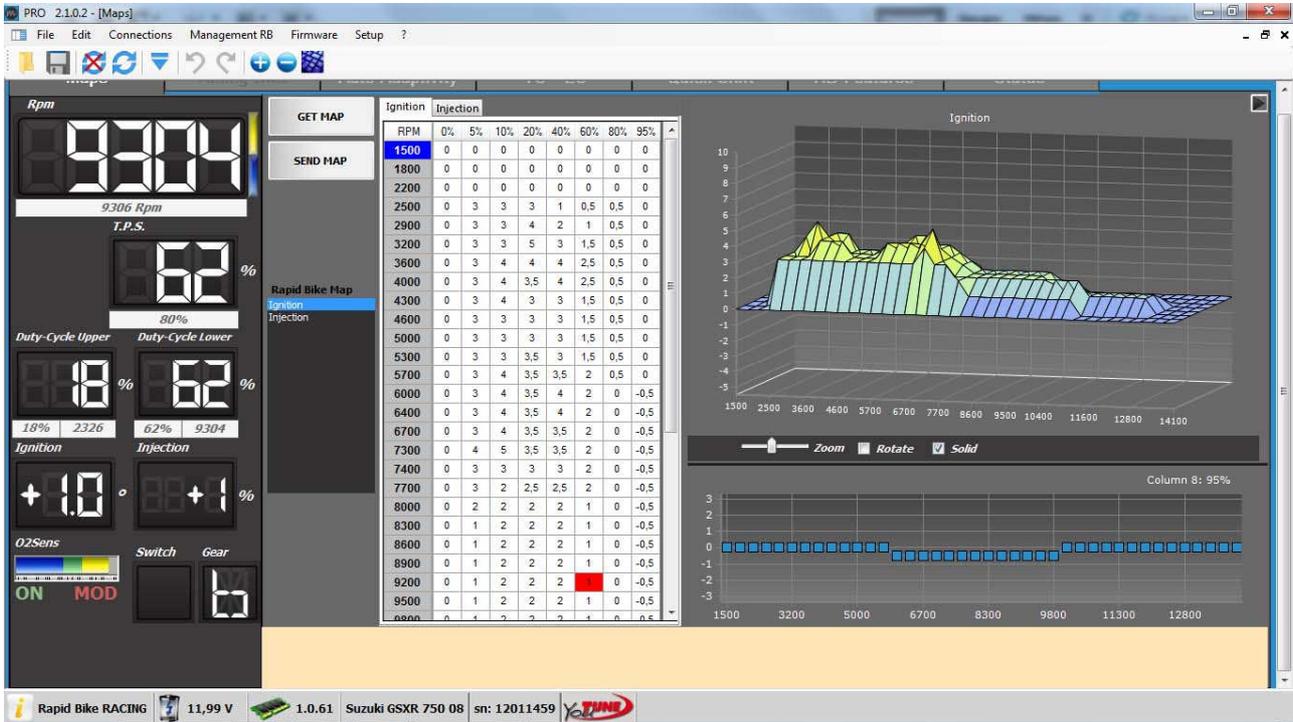
At the bottom of main window there is a Status bar giving information about:

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:

- **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 actually change this signal, when yellow sign is off Rapid Bike module can't change ignition signal. White bar under the display shows the highest RPM value reached during that session.



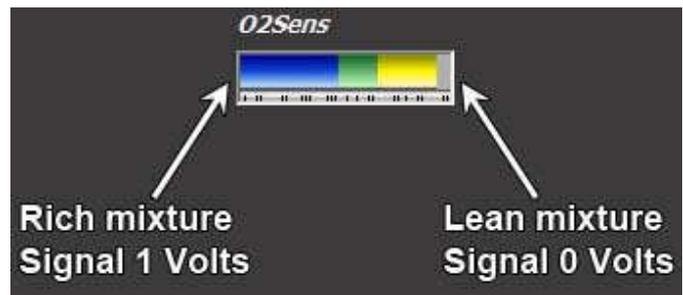
- **T.P.S.:** throttle opening shown in percentage. White bar under the display shows the highest TPS value reached during that session.
- **T.C. / Q.S. / C.P.:** those markers appear when Traction Control (T.C.), Quickshifter (Q.S.) and Correction Pump (C.P.) activates.



- **Duty-cycle:** time of injectors' opening in percentage on one engine's 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 shown in real-time.
- **Ignition:** amount of ignition's adjustment shown in real-time (only with Rapid Bike Racing)
- **O2Sens:** graphic indicator of the oxygen sensor signal (lambda sensor signal).
- **Gear:** gear used (only with Rapid Bike EVO or Rapid Bike Racing kits with the connection to the gear position sensor).

The indicator **O2Sens** shows the signal read from the OEM narrow band O2 sensor installed on the bike, this signal moves between 0 volts (lean mixture) and 1 volts (rich mixture).

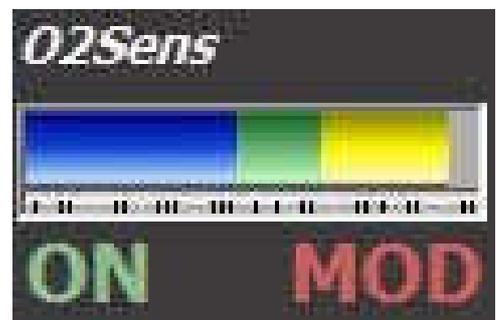
**Please note:** manufacturers don't use all the same type of narrow band sensor and this makes impossible to assign a specific stoichiometric value to what is shown.



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 word **ON** appears under the indicator.

The 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 shown 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 +150% and -100%. For the ignition the measurement unit is 0,5° angular degrees and the maximum and minimum values are +10° and -10°.

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

The reading of the cells related to the first step of rpm, whatever the value is, 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 on 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.

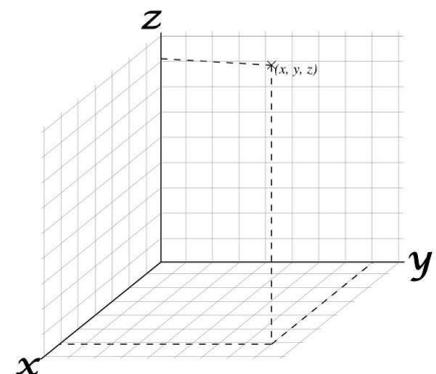
RPM	0%	7%	14%	29%
1500	12	-4	-6	-6
2000	8	-5	-2	-7
2500	4	-6	-2	-12
3000	4	3	-5	-11
3400	3	3	3	-10
3800	2	9	8	-3
4200	0	7	7	0
4600	0	9	6	2
5000	0	4	5	-4
5400	0	2	2	-12
5800	0	3	-1	-16

Further adjustments are available in the feature **Map Configuration** in the form **RB Features** (see chapter 3.7.2).

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

In the 3D charts (see example) the **X** axis shows T.P.S. steps, the **y**

axis shows rpm steps and **Z** axis shows values in the map cells.



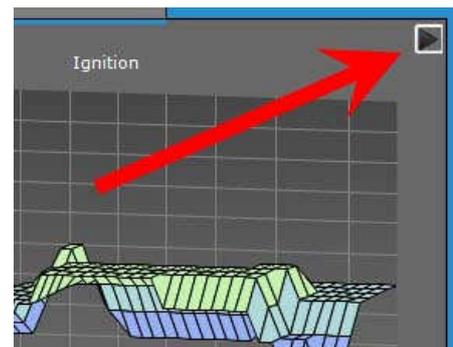
Click on the 3D chart with the mouse left button and move the mouse to change the position of the chart.

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.

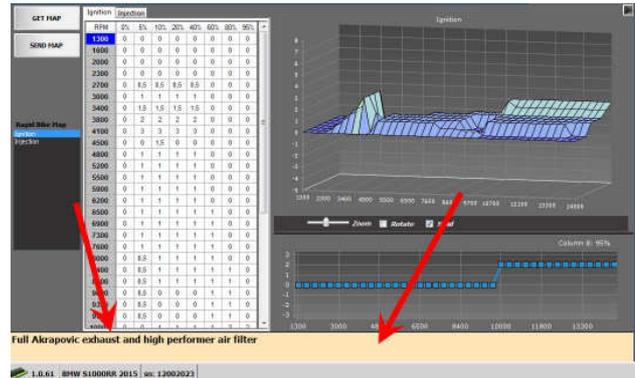
Horizontal axis shows the rpm values (if a column is selected) or the T.P.S. values (if a row is selected).

Vertical axis shows values in the map cells.



Click on the arrow at the top right side to hide the charts and enlarge the maps table.

Under the maps and the charts there is a note field to take note of further information about the map:



### 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 options

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

It 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** (load all the maps opened in the software to the RAM memory of the module)
- **Save in Flash** (save permanently the maps actually stored in 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 **Send Map** to load the maps opened in the software.
2. When software confirms, then click **Save in Flash** to save permanently the maps into the module.

**Note:** the RPM and T.P.S. steps of the map that is loaded will overwrite the ones into the module.

### 3.2.3 Lock maps

Maps can be locked to prevent access by someone else (tuner or end user). It can be used to protect the work of the tuner but allowing other tuners or the end user (e.g. the owner of the module) to access some settings and features. The map's locking is linked to the USB dongle connected to the system: if the Rapid Bike module is connected to the software opened with the same USB dongle that locked the map, full access is ensured.

On the other hand, if a different USB dongle is used with the software (other dealer) or no dongle is used (free software for end user) the maps can't be read and only some features will be available:

- **Quick shifter**
- **Auto-adaptivity**
- **Traction Control – Launch Control**
- **RB Features:**
  - o **Correction pump**
  - o **Calibration**
  - o **Pick-up signal**
  - o **Engine braking management**
  - o **Pit-lane limiter**

Maps can be unlocked at any time by anyone: maps will be erased if the unlocking is done with a USB dongle that is not the one used for locking (or without USB dongle if the unlocking is made by an end user).

The maps' locking is shown in the status bar:



*(Colors may change according to Windows' color scheme)*

Select **Lock maps** in the **Management RB** menu to lock the maps.

Select **Unlock maps** in the same menu to unlock them: the software will ask to do a backup of the module (useful if the maps were locked by someone else – see chapter 3.8).

All Rapid Bike Evo (programmed with firmware 1.0.25 or newer) and Racing modules allows this new map locking system and are equipped with a memory that shows how many times the module has been programmed (for a different motorcycle) and the code of the USB dongle (Rxxxx) that did the last unlock. If the maps were unlocked with Rapid Bike Master Free software (end user) the code shown is "00000".

All those information are available in the form **Status** (see chapter 3.7).

### 3.3 Tuning Bike

This form is dedicated to the management of Tuning Bike system, a professional tool for the automatic mapping of Rapid Bike module's injection map.

*For further information please refer to the specific manual*

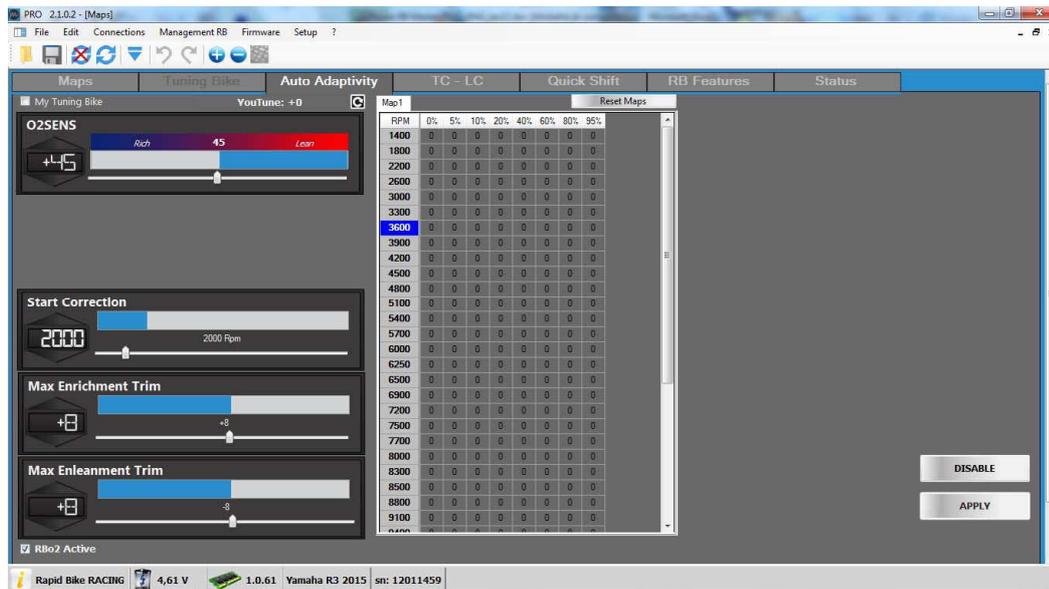
**Note:** this product has been discontinued by December 2015.

### 3.4 Auto Adaptivity

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

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

#### 3.4.1 With OEM O2 sensor



The left side of the window contains the settings of this feature; the right side of the window shows the map with the adjustments calculated by the Rapid Bike module.

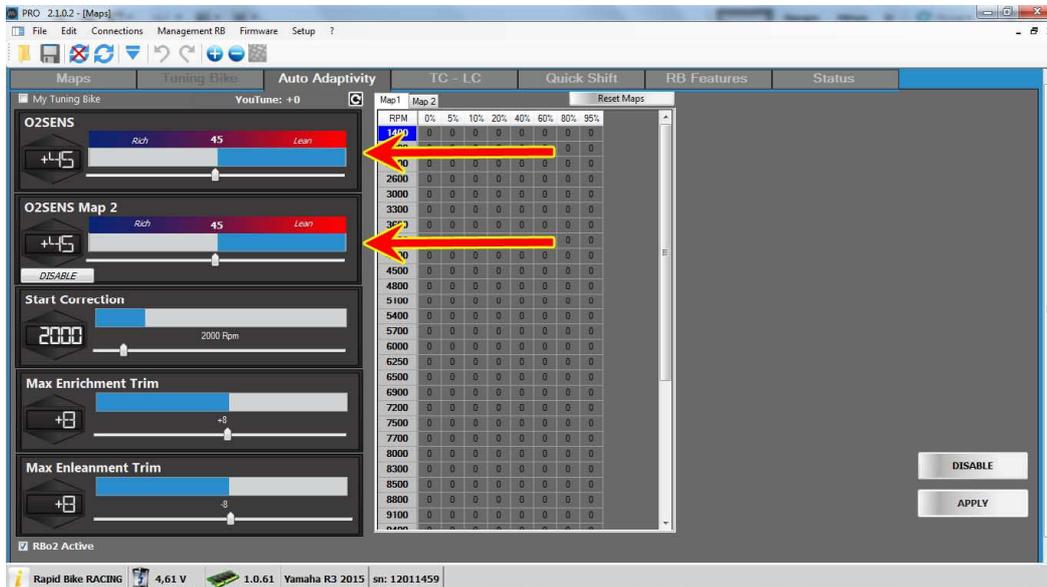
While riding, the injection adjustments calculated by the module are stored into the auto adaptivity map. Then the injection signal of the OEM ECU is modified by the value of auto adaptivity map and the main map of the module.

Auto adaptivity map can be erased by clicking button **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).

### 3.4.1.1 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 dangerous regulations for the engine.

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

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

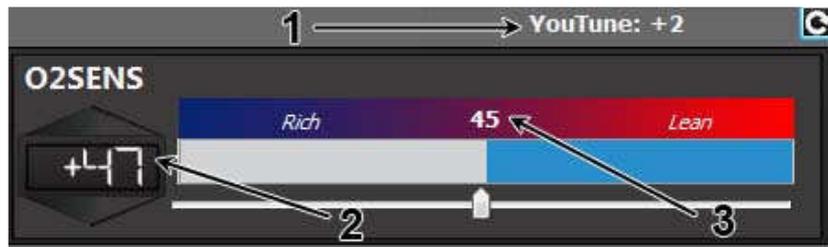
**RBo2 Active** sets whether the O2 sensor modulation system is active or not. That function must be disabled, by removing the checkmark, **exclusively** if OEM O2 sensor has been removed because of the installation of a different OEM ECU like YEC, HRC, etc. or because of a reflash of OEM ECU that disables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

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

### 3.4.1.2 Management with Youtune controller

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's setting.

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



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

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

### 3.4.2 With My Tuning Bike device

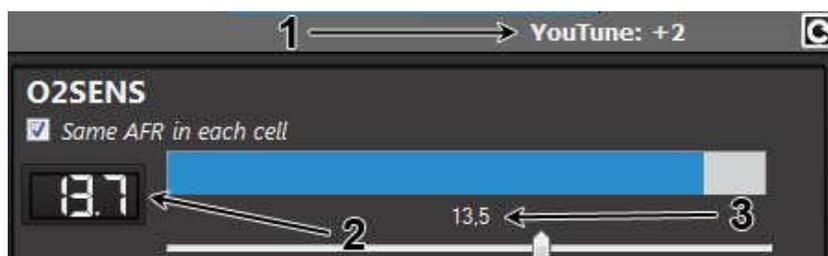
My Tuning Bike is an optional device that makes Auto-Adaptivity feature read a wideband O2 sensor instead of OEM narrow band O2 sensor. The main advantage given by this accessory is a quicker and more accurate adaptation of the fuel mixture thanks to the possibility to set an A/F ratio value as target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

*For further information please refer to the specific manual*

#### 3.4.2.1 Management with Youtune controller

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

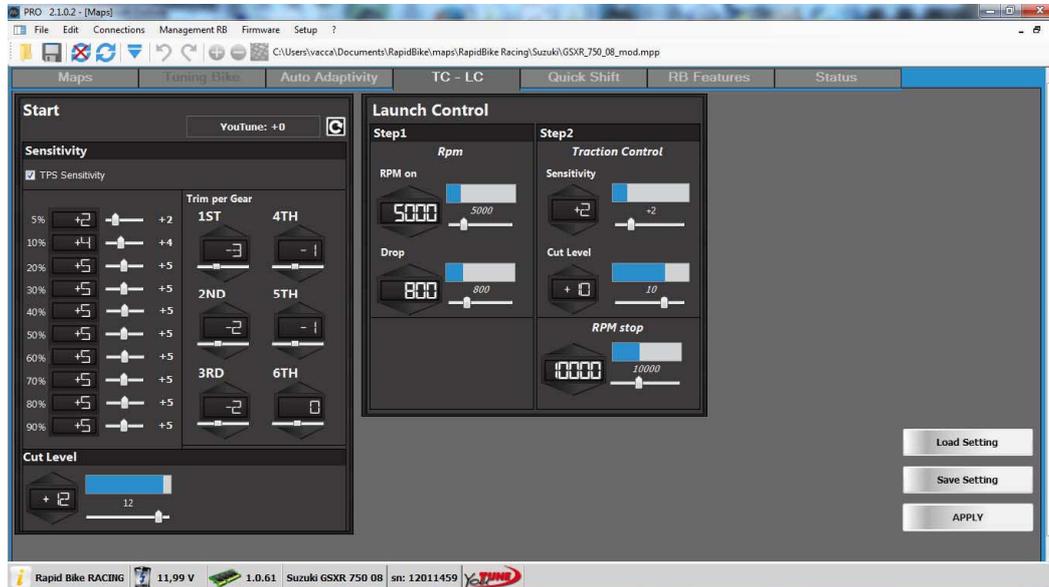


Clicking button  updates the information according to the value sets in Youtune controller.

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

### 3.5 Traction Control – Launch Control (TC – LC)

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



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

#### 3.5.1 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 fit their own needs and riding style.

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

**Note:** it is recommended to not overwrite the file contained in the default folder of **tlc** files.

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

##### 3.5.1.1 Sensitivity

This parameter sets how much the rear wheel has to spin to make 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 (except made for 5% breakpoint which goes from 0% up to 9% of TPS):

<b>5%:</b> from 0% to 9% TPS	<b>50%:</b> from 50% to 59% TPS
<b>10%:</b> from 10% to 19% TPS	<b>60%:</b> from 60% to 69% TPS
<b>20%:</b> from 20% to 29% TPS	<b>70%:</b> from 70% to 79% TPS
<b>30%:</b> from 30% to 39% TPS	<b>80%:</b> from 80% to 89% TPS

**40%:** from 40% to 49% 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 adjusted further 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)

### 3.5.1.2 Cut Level

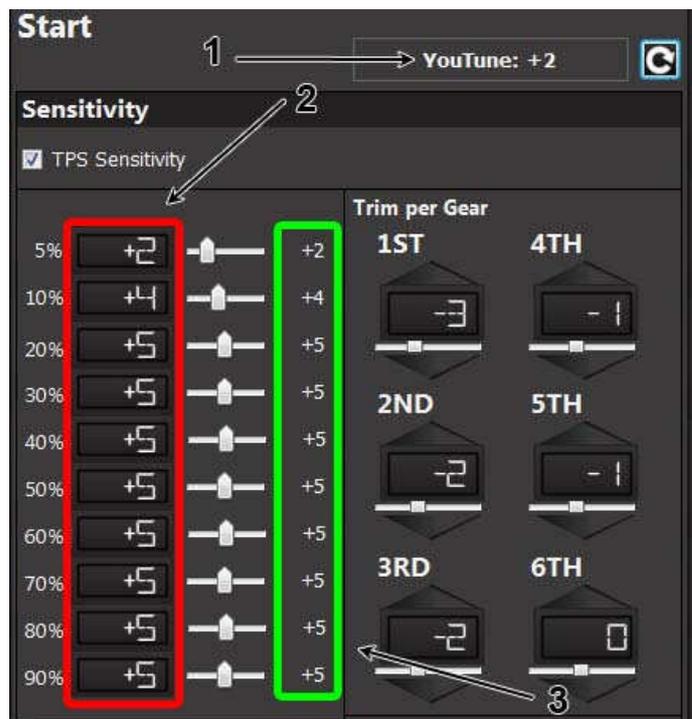
This parameter sets how much engine's power must be reduced, by cutting injection, during traction control intervention.

Range of adjustment is from **1** to **13**: the higher the number, the higher the power reduction.

### 3.5.1.3 Management with Youtune controller

Youtune controller is an activation key for the traction control in 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 change the sensitivity, with a range of  $\pm 5$ .

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



Clicking button  updates the information according to the value sets in 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: <b>5</b> Youtune setting: <b>+5</b> Gear setting: <b>+5</b>  Overall sensitivity: <b>10</b> (not 15)	Software setting: <b>5</b> Youtune setting: <b>-5</b> Gear setting: <b>-5</b>  Overall sensitivity: <b>1</b> (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 manual*

### 3.5.2 Launch Control

Launch Control assists riders accelerating from a standing start, limiting the engine speed to a specific value and 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.

**Note:** *Launch Control feature has no anti-wheelie system, it only avoids rear tyre spin.*

#### 3.5.2.1 Step 1

Step 1 limits 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.

#### 3.5.2.2 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 3.5.1.1 e 3.5.1.2) 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 3.5.1).

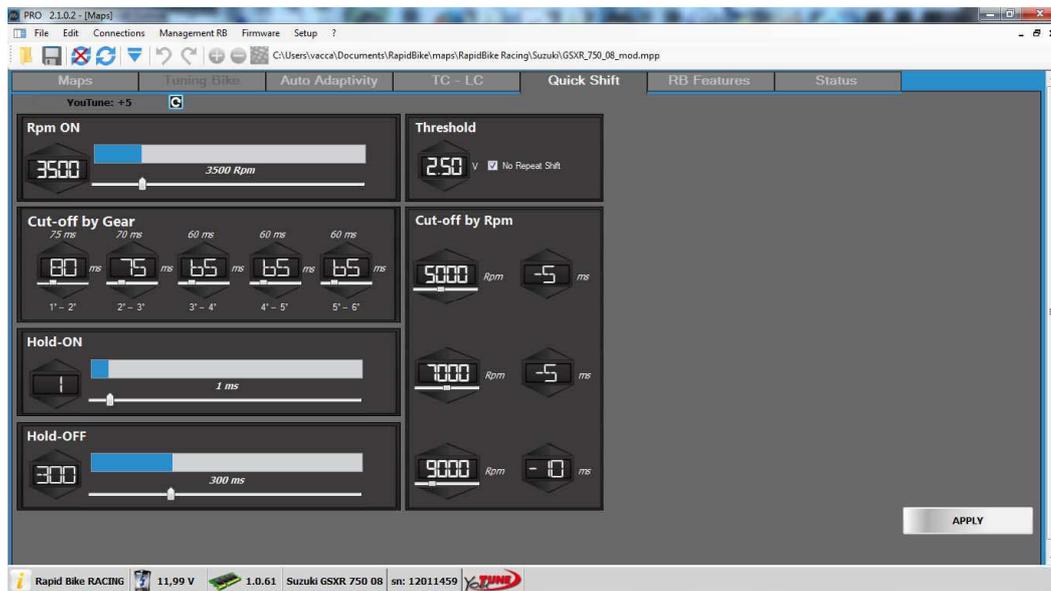
### 3.5.2.3 Management with Youtune controller

Youtune controller is an activation key for Launch Control feature of 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 manual*

### 3.6 Quick Shift

This form is used to modify the quickshifter's settings.



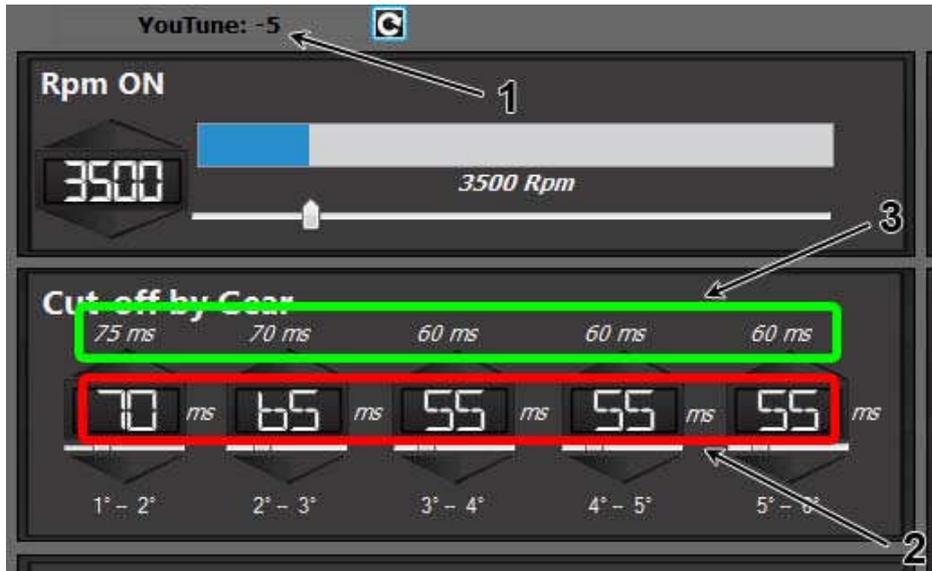
Settings are:

- **RPM On:** number of rpm above which the quickshifter works (if the minimum value is selected the quickshifter feature is disabled).
- **Cut-off:** kill-time of injection signal to allow 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 is cut as soon as the upshift signal is received (dangerous situation).
- **Hold-OFF:** a filter (made by the module for the time sets) 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 including 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 power cut (that would happen once Hold-OFF time ends).

### 3.6.1 Management with Youtune controller

Youtune controller allows, while riding, to turn on and off this feature, and modify the Cut-off setting within 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 is the value of the Youtune controller (1) and what is the resulting Cut-off value (2) of software target (3) + Youtune.



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

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

### 3.7 RB Features

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

#### 3.7.1 Calibrate

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

##### 3.7.1.1 T.P.S. Calibration



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

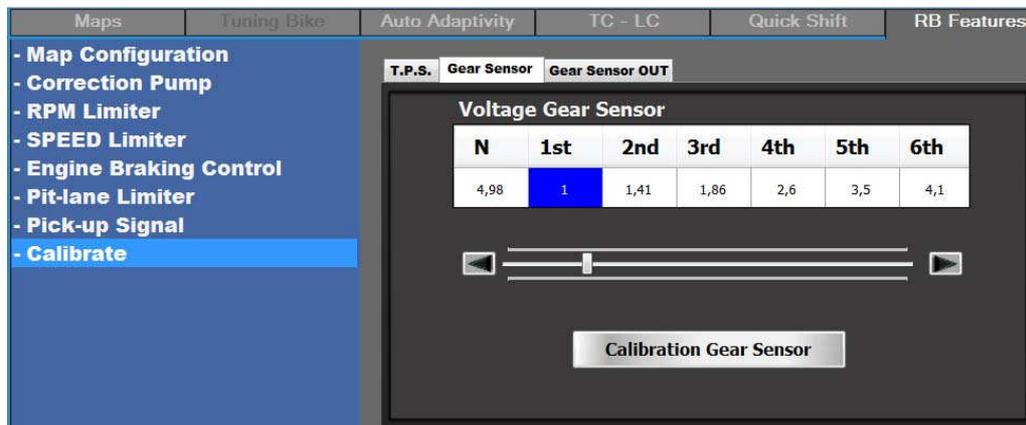
**Note:** full throttle opening of ride-by-wire bikes must be checked on a dyno because ride-by-wire doesn't open completely the throttle butterflies when bike is in neutral or on the stand.

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.

### 3.7.1.2 Gear Sensor Input Calibration

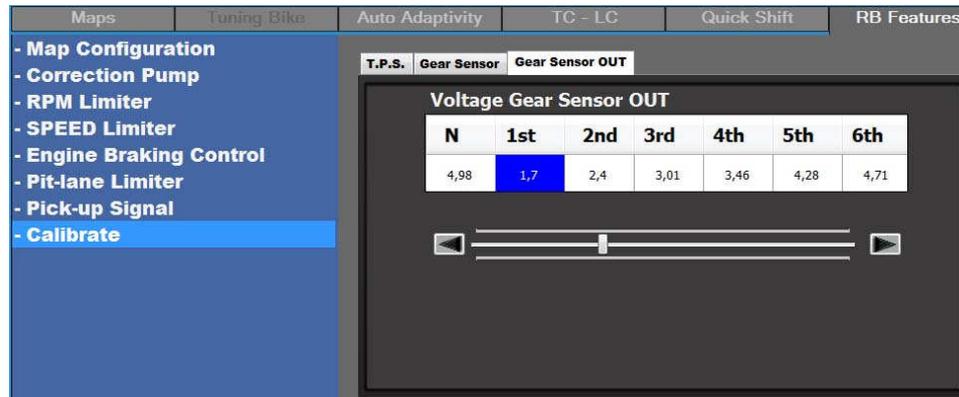


The gear position sensor calibration is necessary when the gear used and the one shown on the software are not the same.

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.

### 3.7.1.3 Gear Sensor Output Calibration



**WARNING:** This calibration is needed only if the gears are not displayed correctly on the dashboard, with Speed Limiter feature disabled, and the Gear Sensor Input Calibration (par. 3.6.1.2) has already been done.

It allows changing the output voltages of the Gear Position Sensor from the Rapid Bike Evo/Racing module to the stock ECU.

Proceed as follows (Speed Limiter feature must be disabled):

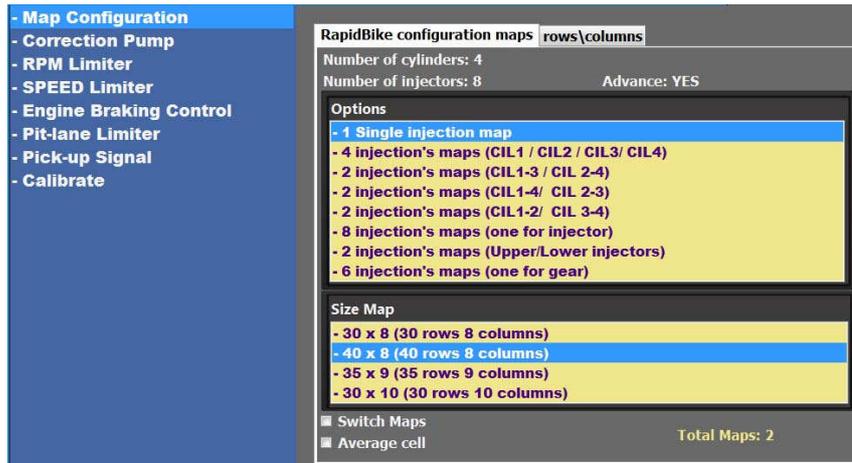
1. Turn on the engine.
2. Pull the clutch and move the shift rod to insert the proper gear ratio.
3. Adjust the corresponding value in the table moving the cursor or clicking on the arrows.
4. Click on **Apply** to save the new values and repeat the process if needed until the gears are displayed correctly on the dashboard.

**WARNING:** if the Gear Position Sensor indication is wrong, even if the calibration with the RB Master software has already been done, the GND of OEM ECU must be connected to the negative pole of the battery. This will avoid the differences between the GND of the two modules (OEM ECU and Rapid Bike) causing the defect.

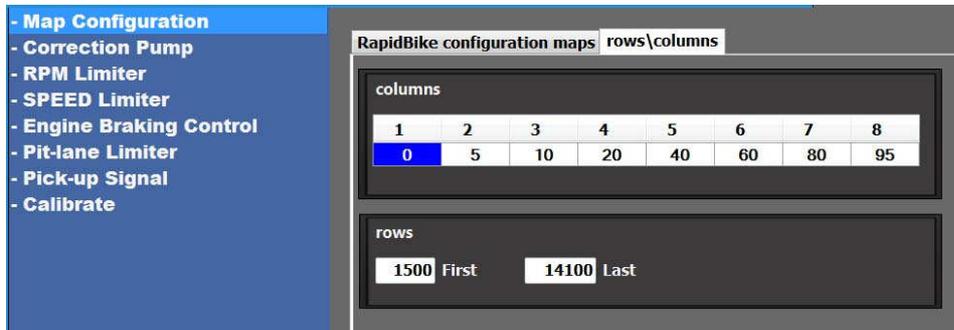
### 3.7.2 Map Configuration

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

- **Rapid Bike configuration maps:** depending by the module connected, it is possible to select the number of injection maps and if enabling or disabling the maps switch.
  - o **Size Map:** set the resolution columns/rows of the maps.
  - o **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 smoothed out.



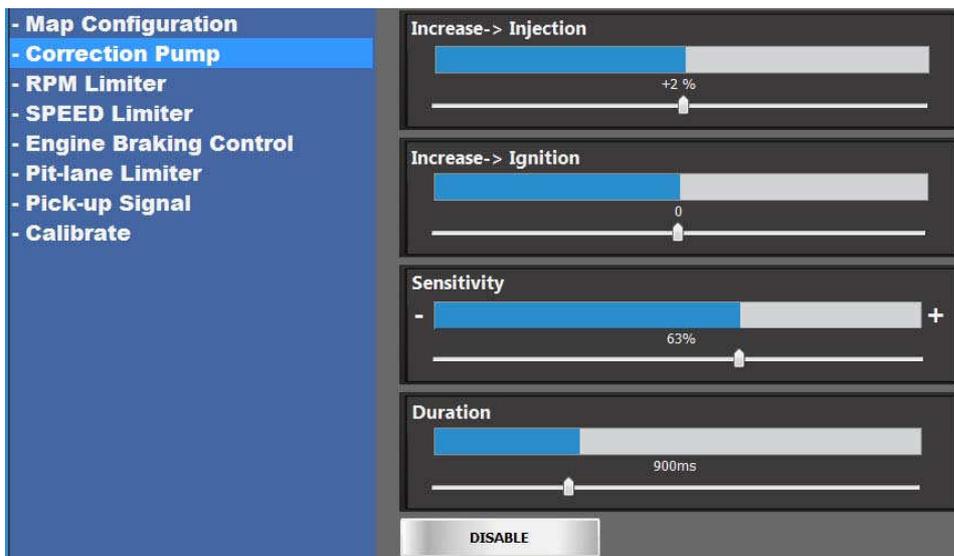
- **Rows/columns:** change T.P.S. steps for each column and the range of rpm in the map (maximum and minimum value of rpm).



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

### 3.7.3 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 feature intervenes.
- **Increase Ignition** (only for Rapid Bike Racing): set the degrees of ignition to add/remove when 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 add (or remove) fuel and/or ignition when it intervenes.

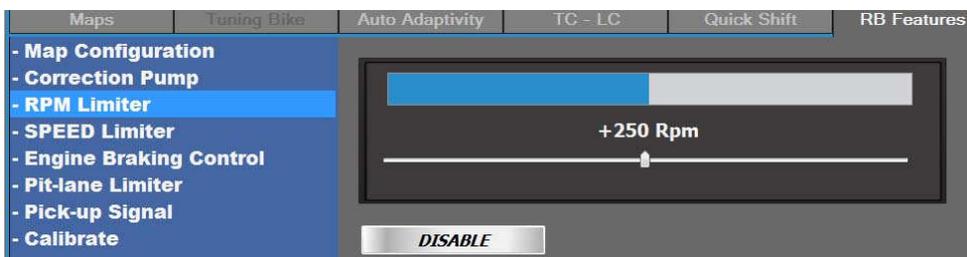
Please note that the setup of this function depends a lot by rider's sensitivity and riding-style, so there is not an ideal one fitting everyone's needs

To help the regulation of the pump, software shows sign "C.P." near the display T.P.S. into form **Maps**, when the pump is active.



### 3.7.4 RPM Limiter

Allows setting how many rpm the Rapid Bike add to the stock rpm limiter. This feature is strictly related to the Rapid Bike firmware so it is not available for all the applications.



Move cursor to select how many rpm must be added to the stock rpm limiter, then click button **Apply** to save new setting.

If a switch map is used with Rapid Bike Racing module it is possible to set a different value of rpm limiter for each position of the switch.

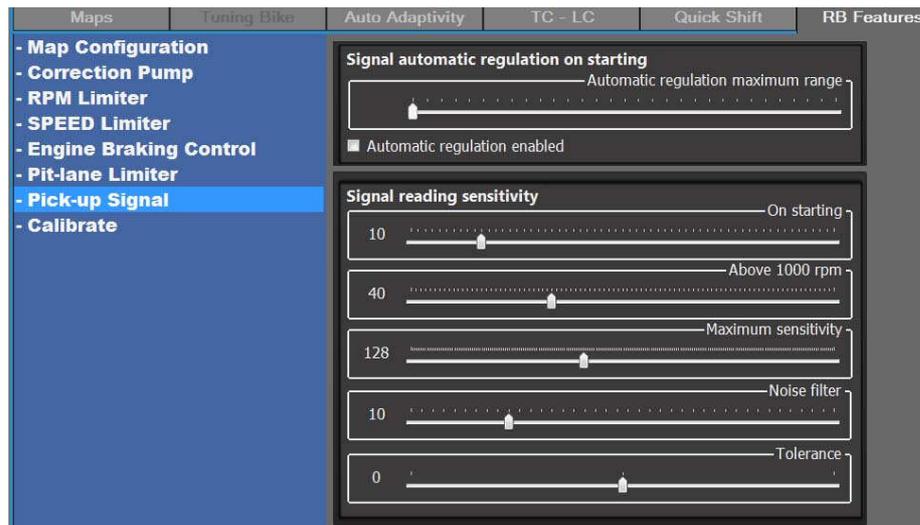
Select position 1 on the map switch, download data from the module, set the desired value of rpm limiter and click on **Apply**. Then move the switch on the position 2 and repeat the same operations.

### 3.7.5 Pick-up signal

Allows changing the crankshaft sensor signal reading sensitivity, useful when this signal is too strong or too weak.

In both cases, 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 sets the maximum range in which Racing module can increase or decrease the reading sensitivity.
  - **Automatic regulation enabled:** it activates the automatic regulation of the sensitivity. If disabled, the value used during engine starting will be the one sets for setting **On starting**.
- **Signal reading sensitivity:** settings 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 module can reach (usually after 8000 rpm).
  - **Noise filter:** setting for the filter of crankshaft sensor signal's noises.
  - **Tolerance:** changes the dimension (in degrees) of the crankshaft wheel's hole (used only for BMW S1000RR).

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

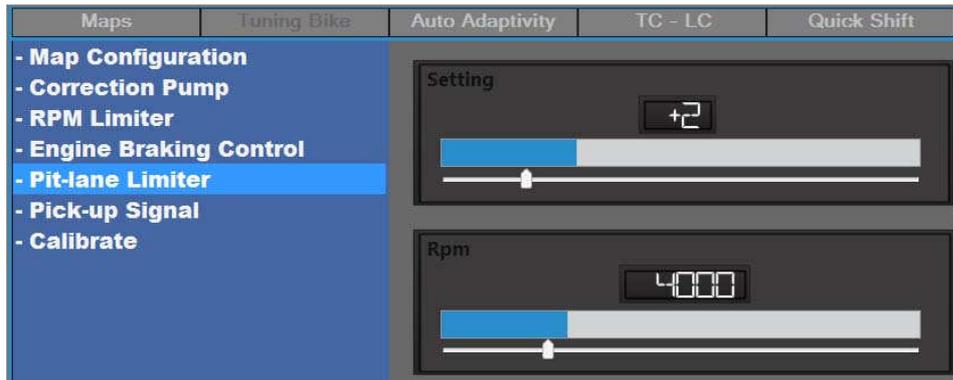
**IMPORTANT:** the default parameters of all these settings are set during development to ensure a proper functioning.

Changes of these parameters are therefore required ONLY if there are any problems related to the engine speed signal after installing the unit.

### 3.7.6 Pit-lane limiter

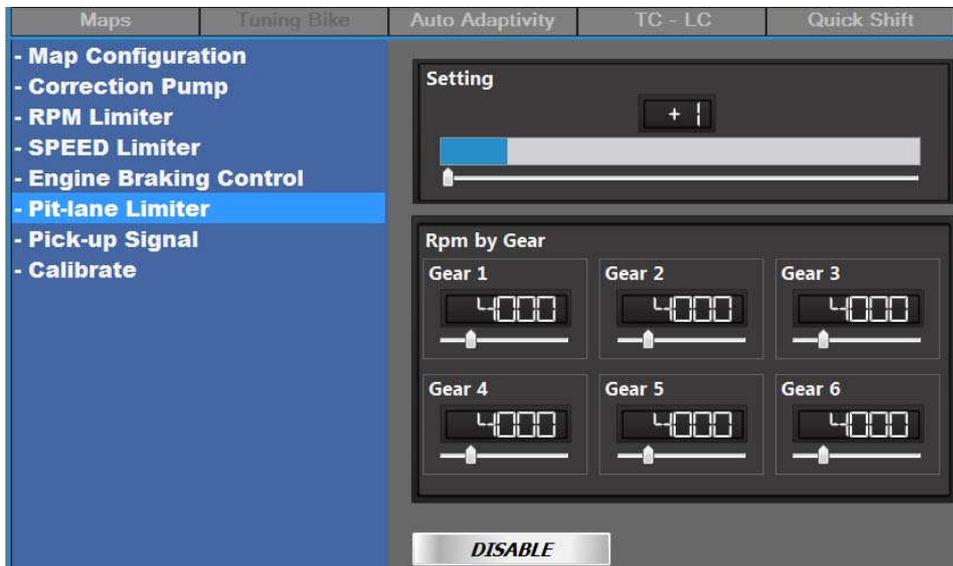
This feature is used to put an rpm limiter lower than the stock one that can be activated with a switch.

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 there is the connection to the Gear Position Sensor, use the cursors to set rpm values for each gear ratio.

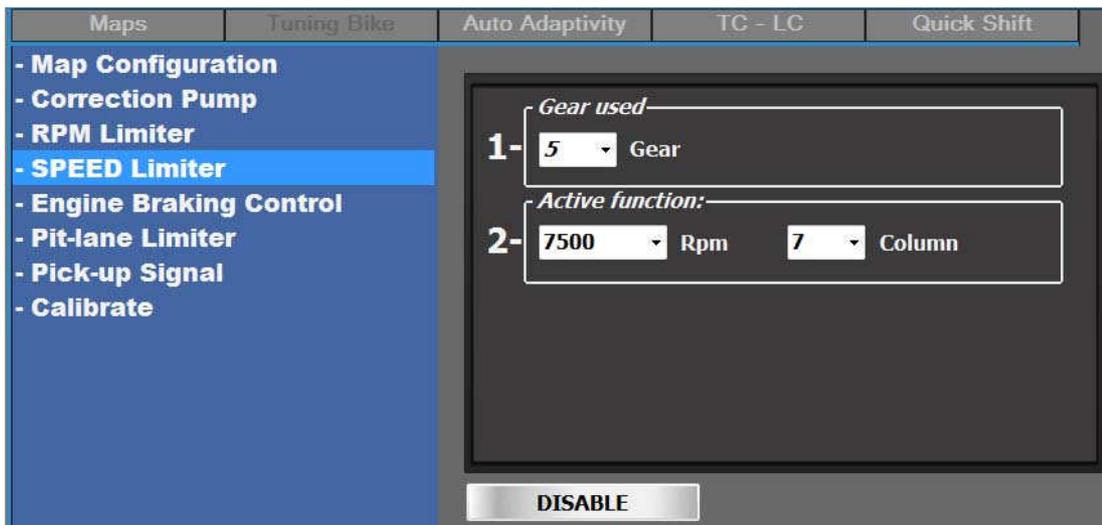
**Setting** allows choosing different managements of the power cut from the Rapid Bike module. The higher the value, the lighter the power cut.

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

### 3.7.7 Speed Limiter

This feature allows removing the speed limitation on the bikes which have the connection to the gear position sensor. Usually the speed limitation is enabled in 5<sup>th</sup> or 6<sup>th</sup> gear; this feature removes this limitation by changing the signal coming from gear position sensor.

Above a certain rpm and throttle opening the Rapid Bike Evo and Racing modules changes the gear position sensor signal so OEM ECU will detect a gear that is not the one actually used.



Click on **Enabled/Disabled** to activate this feature with the default parameters (they may change from bike to bike).

- **Gear used:** set which gear will be reported to OEM ECU when feature is active.
- **Active function:** set the rpm value and T.P.S. value (in number of the map's column) after which the feature activates. Both conditions must occur to activate the feature.

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

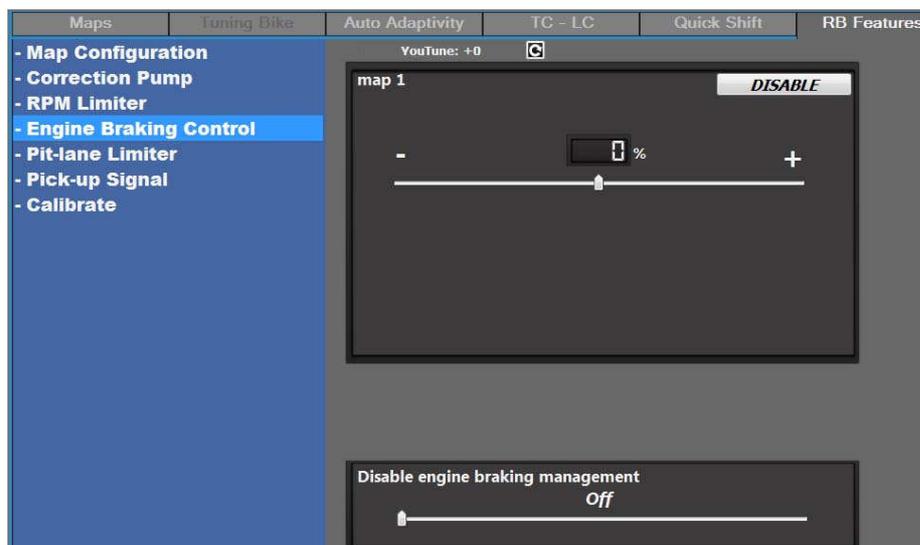
### 3.7.8 Engine braking control

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

Rapid Bike module is able to adjust the engine braking by managing the injection during deceleration (throttle closed).

On most bikes OEM 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, Rapid Bike module handles the injectors giving a certain amount of fuel, this will reduce the braking force generated by the engine.



Click button **Enable/Disable** to activate and deactivate the feature. 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 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 managing the injection (only if it is set higher than the rpm at which OEM ECU turns 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.

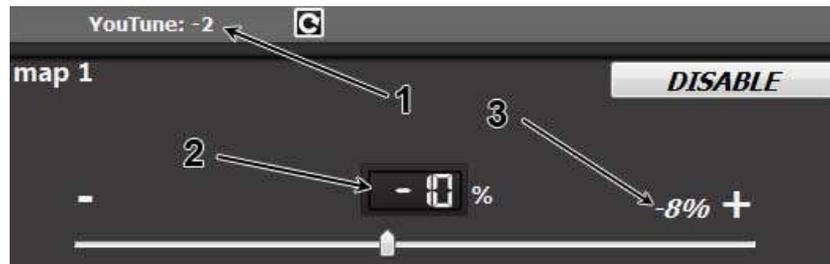
Click button **Apply** to save new settings.

### 3.7.8.1 Management with Youtune controller

Youtune controller allows modifying the software's setting, when it's both single or different for each gear ratio, within 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 is the value of Youtune controller (1) and what is the resulting value (2) of "software setting (3) + Youtune".



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

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

### 3.8 Status

In this form it is possible to check some parameters of the system regarding Rapid Bike Evo and Racing modules.

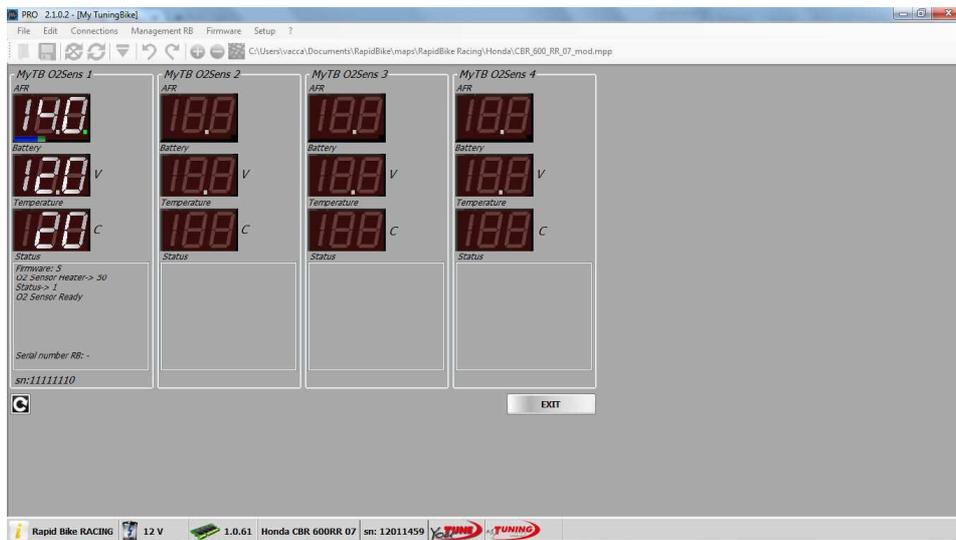


It is possible to check:

- Engine's Rpm in r/min and milliseconds (ms).
- Duty cycle and injection time (ms) for each injector.
- Amount of adjustment for each injector.
- Sensors' voltage
  - o T.P.S.
  - o Switch Gear
  - o Switch Maps
  - o O2 Sensor 1 Input/Output
  - o O2 Sensor 2 or Gear Position Sensor Input/Output.
- Feeding Voltage
  - o Battery
  - o 5v
- Operating temperature
  - o CPU
  - o Mainboard
- History of the module:
  - o Code of the USB dongle that has done the last unlock of the maps
  - o Counter of unlocks
  - o Counter of programming (change model of the motorcycle)
  - o Maximum rpm limiter value ever set
  - o Counter adjustments of the Engine braking control settings
  - o Counter adjustments of the Pit-lane limiter settings
  - o Maximum CPU temperature ever reached
  - o 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:
  - o Firmware version
  - o O2 sensor heater:
    - Between 40 and 50 for sensor LSU 4.2 (C27SONDA)
    - Between 100 and 150 for sensor LSU 4.9 (C27SONDA2)
  - o Status (0 = device off, 1 = device on and no errors, n>1 = errors)
  - o O2 sensor state



### 3.9 Programming modules

The Rapid Bike Evo and Racing modules can be programmed in two ways: loading a map saved on the computer or using the Programming Wizard.

By loading a map, software will program automatically the firmware and the default settings for all the features (**Quickshift**, **Auto Adaptivity** and **RB Features**).

Open a map saved on the computer and then click on **Send Map**: the software will load map, firmware and settings (it could take some seconds).

The Programming Wizard simplifies and speeds up this process: it allows to program the module by selecting the manufacturer; the model and the year or the relative kit code and it unlock automatically the blank modules.

When a blank module is connected the software automatically asks if module must be programmed and starts the Wizard if the answer is **Yes**, otherwise click on **Programming Wizard** in the **File** menu to start the feature.

Once the Wizard is opened select the type of module (whether module is not already connected to the software), then select the manufacturer, the model and the year or the related kit code within the pull-down menu and click button **Programming** to start the process.

---

### 3.10 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 a different motorcycle.

Click on **Backup RB** into menu **Management RB** 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.

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

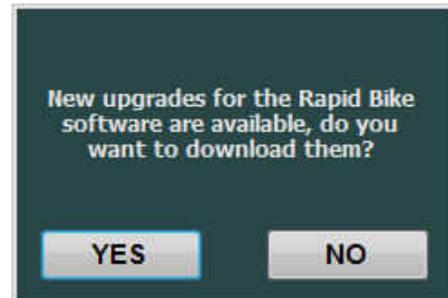
## 4. Services

### 4.1 Technical support:

- Phone number: **+39 0142 955021** - from Monday to Friday from 09:00 am until 01:00 (CET) pm and from 02:00 pm until 06:00 pm (CET)
- E-mail address: [support.rapidbike@dimSPORT.it](mailto:support.rapidbike@dimSPORT.it)

### 4.2 Upgrades:

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



### 4.3 Website reserved area:

On website [www.rapidbike.it](http://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 shown in the picture.



In the next page select "Rapid Bike" logo



Click on "Register here".

Select the registration reason in the next window.

Choose "I'm a RapidBike dealer".

NOT REGISTERED YET?

REGISTER HERE

In the next window fill the form with a valid e-mail address and the codes found on the black usb key and on the software cover.

Accept the privacy management and click on "Register".

An automatic e-mail with the password for the access will be sent.

Into the reserved area it will be possible to check handbooks, download a copy of the software and establish a database of the sold units by registering the serial number.



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a company of  
una azienda del gruppo



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***www.rapidbike.it***

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