Before using the system GRIPone read every page of this manual. The installation of this device requires attention and accuracy. The configuration of the device requires several non-trivial reflections, referred to only within this manual. Please note that you are installing a device on a vehicle can reach high speeds. The system GRIPone is a professional and not approved for use on road.

**ECU GRIPone PRO
X 1**

**Plug&Play harness (or universal)
X 1**

Speed sensors X 2

USB cable X 1

2.0 Safety

During the installation of this product, it is recommended to position the motorbike in such a way that is cannot cause any injury or damage by falling down or moving forward or backward; it is recommended to use the rear stand or, if necessary, the wheel lock. Make sure that the injection system is always turned off and that the electrical equipment is not being powered during the installation of this product (and, as well as, during all assembly phases indicated in this manual). When adding or removing electrical cables or wiring to/from the motorcycle's equipment, always be sure to remove the negative battery terminal before the positive battery terminal. During reassembly phases, connect the negative terminal last in order to avoid short circuiting the electrical equipment

3.0 Installation reccomandations

DO NOT RUSH! When installing the GRIPone control unit, make sure that the unit is protected from excessive vibrations and surrounding elements and that it is clamped firmly. When you use the adhesive parts (for setting up the control unit or cables), make sure that the mounting surfaces are clean and free of dust or grease by cleaning them with degreasing solution. When positioning the wiring, make sure that the wires cannot be pinched or crushed which may cause subsequent malfunctions, clamp them as necessary. For safe and professional assembly, it is recommended that you solder the connections when possible and use thermo-tightening bands to isolate the various conductors. Place the hot part of the welder on the ends of the wires before putting them in contact with each other. Do not hesitate to contact the vendor/supplier for assistance if you encounter any difficulties with the installation of this device. WARNING! The GRIPone control unit must be placed where the operating temperature does not exceed 65°C and should be installed where it will be protected from vibrations and surrounding elements. Locate a flat surface on which to secure the control unit. Do not secure the unit until the installation of all other components has been completed and the wiring has been secured.

4.0 Whats is GRIPone and how it works

I In sports, every bike is continually found to be in critical situations in which the rear wheel loses its grip during acceleration. GRIPone is a universal device, designed to be easily attached to any vehicle and through which it is possible to control the level of sliding at the rear wheel. Moment by moment, GRIPone checks the conditions of the motorbike on which it is mounted and manages the power to restore the optimal running conditions, increasing stability and improving the overall yield. GRIPone is an electronic traction control system consisting of two elements: the GRIPone control unit and two speed sensors. Working in unison, they continuously monitor the traction conditions for the motorcycle. Under normal circumstances (i.e. when no sliding is occurring), the control unit does not intervene in any way with the motorcycle.
When above-normal sliding is detected, the control unit reduces the engine power until normal roadholding is restored. Once the rear tire re-establishes correct adhesion and the sliding is detected to be within the accepted threshold, the control unit ceases to reduce the engine power

The installation of the system involves connecting the GRIPone control unit to the power wiring of the motorcycle and linking the two speed sensors in close proximity to both wheels The installation of the GRIPone control unit is possible on all motorcycles with inductive or transistor ignitions (or on bikes with injection system of a single injector per cylinder). The GRIPone control unit cannot be installed on CDI control. Connecting the GRIPone control unit to CDI type ignition, it will be damaged.

5.1 Connection by plug & play cable
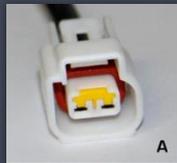
Follow the following steps to connect the system to the wire harness of vehicle.
1. Remove fuel tank and airbox;
2. Unplug the connector from a ignition coil (we recommend to disconnect one of the outer cylinder);
3. Plug the connector A of plug & play cable to the coil previously disconnected.
4. Plug the connector A of plug & play cable to the connector previously disconnected from the coil.
5. Connect the black wire of the plug & play cable to the negative pole of battery or to the frame.
6. Relocate the airbox and the tank.
7. Connect the GRIPone ECU to plug & play cable through 5-pole connector;
8. Secure the unit using fixing tape included

5.2 Connecting by universal cable
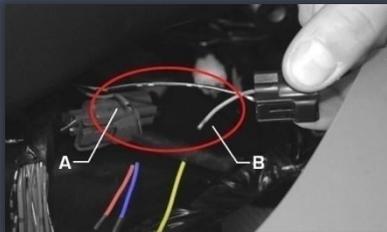
Fig 1

Fig.2

Fig.3

Fig.4

Please follow the following steps for electrical connection.

1. Be sure that the bike is off and battery is disconnected.

2. Place the GRIPone ecu by the special tape included into the kit. Please choose a position far from hot please (engine, exhaust pipe). Near to head pipe or tachometer are recommended.

3. Connect the included cable to GRIPone ecu by the "superseal" 5 pole connector.

4. Connect the black wire to the frame by the included ring tongues. Be sure that the chosen point is electrically connected to negative pole of battery.

5. Find the positive pole of ignition coil (or single injector for cylinder). To find the positive pole the user can check all the wire of all ignition coils (or injector). The one that is common to all coils is the positive pole.

6. Cut the positive pole of ignition coil (on injector) near to the connector. (fig.1)

7. Connect the red and blue wire (of GRIPone cable) to the A end (fig. 1) by the heatshrincable head junction (fig. 2).

8. Connect the yellow wire (of GRIPone cable) to the B end (fig. 1) by the heatshrincable head junction (fig. 3).

9. Cut the negative pole of other coil (or other injector). Don't use the same coil chosen in steps 6, 7 and 8.

10. Connect the green wire (of GRIPone cable) to the two ends created in step 9 (fig.4)

5.3 Collegamento della centralina al TPS (Sensore di posizione del comando gas)

To be able to take advantage GRIPone PRO performance it is necessary detect the position of throttle valve via the TPS (throttle position sensor) mounted close to the throttle body. Included in the kit is provided a connection cable (length 1m) to connect in to the connector number 3 (see the figure below).

The other end of the cable is connected to the sensor TPS. The red wire must be connected to the signal provided by TPS and the blue wire must be connected to the ground signal of the TPS. It is recommended to solder the cable to the terminals of TPS connector pins and covered with metal sheath heat shrink any remaining discovery.
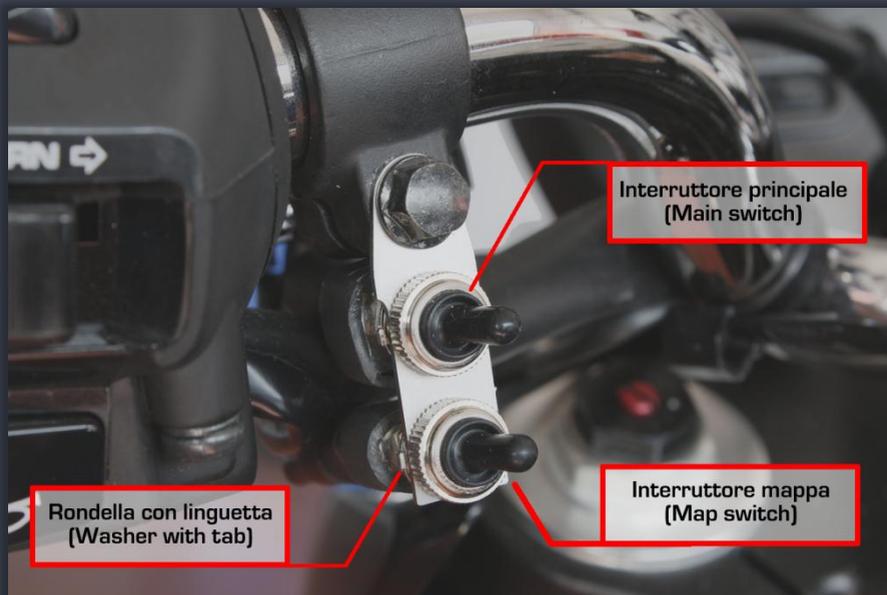
Onto the cable included in the kit there is a lever switch that allow you to activate or not the traction control system and a stirrup. On the switch there is a thread that allow you to fix it to the stirrup in a specific way (see the picture). On the thread there is a elongate furrow who guide a washer with a tab. Tab fix the verse of mounting. When the lever is set to the left the traction control system is operative. When the lever is set to the right the traction control system is off.

NOTE
Even with the traction control off the ECU stay on.

To measure the speed and spinning of the bike the GRIPone ecu use two sensor, one for each wheel The sensors consist of a filleted M8x1 cylinder which is connected to the signal cable (already wired). The connectors that are located at the ends of the cable of the sensors should be connected to the two 3-pole connectors located on the GRIPone control unit (fig. 7). Follow the following step.

Fig.5
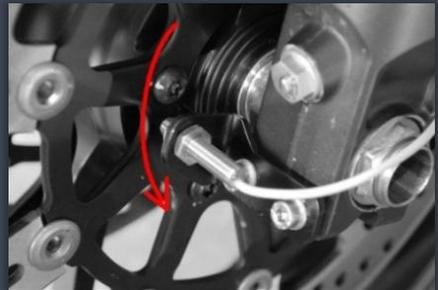
Fig.6

Fig.7

1. Make a support for front sensor The front sensor must detect the passage of minimum 3 or maximum 6 bolt of front brake disk (fig.5).

2. Fix the front sensor to the support and adjust its to the correct distance to disk bolt. The sensors detect the passage of a bolt if it is not further away than 1.5 mm or closer than 0.5 mm. **Locking torque = 0.5 Kg/m.** (fig.5)

3. Make a support for rear sensor The rear sensor must detect the passage of 3 or more bolt of rear brake disk (or rear sprocket). (fig. 6)

4. Fix the rear sensor to the support and adjust its to the correct distance to disk bolt. The sensors detect the passage of a bolt if it is not further away than 1.5 mm or closer than 0.5 mm. **Locking torque = 0.5 Kg/m.** (fig.6)

5. Connect the front sensor to the 3 pole connector placed on the right (on GRIPone ecu) and the rear sensor to connector on the left. (fig. 7)

6. Switch on the GRIPone ecu.

7. Check that both sensors detect the passage of the bolt. If the sensor detect correctly the bolt a led (placed on back of sensor) will switch on.

Important

It is important not to confuse the front sensor with the rear sensor when connecting two sensors to GRIPone ecu. Please refer to the figure 7. The proximity sensors should be applied to the motorcycle through rigid brackets, so that at every complete revolution of the wheel they detect the passage from a minimum of 3 to maximum of 6 bolt.

When installing the sensors in correspondence with the fixing screws of the disk brake or of the rear crown, be careful not to use (as ferrous objects) hollow head screws (like hollow screws or bolts or Allen head screws). If the motorcycle is equipped with this type of screws, it is necessary to replace them with full head screws. Every ferrous object detected by the sensor should be equidistant from the others. If these two conditions are not satisfied, the system will not function correctly.

The ECU GRIPone PRO must be used with freeware software GRIPone PRO. This software works on windows platform (Windows XP or Vista). It permits the setting of the GRIPone PRO ECU and saving of setting parameters. The software is not provided in the kit but the user must download it from the web site www.gripone.com.

8.1 Installation of the software

1. Connect to the website and go to the download section .
2. Download the program (format .zip) and save it to the desktop.
3. Unpack the. Zip file .
4. Run the file "setup.exe" remaining connected to the Internet. The software requires framework.net 3.5 (from Microsoft), if this form is not installed in the PC, the installing procedure will download it from microsoft.com and install it automatically.
5. Follow the directions step by step until the installation is complete. After the program launches automatically.
6. Connect to the website and go to the download section.
7. Download the USB drive (format .zip) and save it to the desktop
8. Run the .exe file and follow the directions to install the drive on your PC. At the first connection of the control unit to the PC waiting the PC recognized the USB device before communicate with GRIPone PRO.

8.2 Functions of the software

Once installed the software you can run it from the Windows Start menu or from the icon created on your desktop. When you start the software it appears as shown in Figure 8
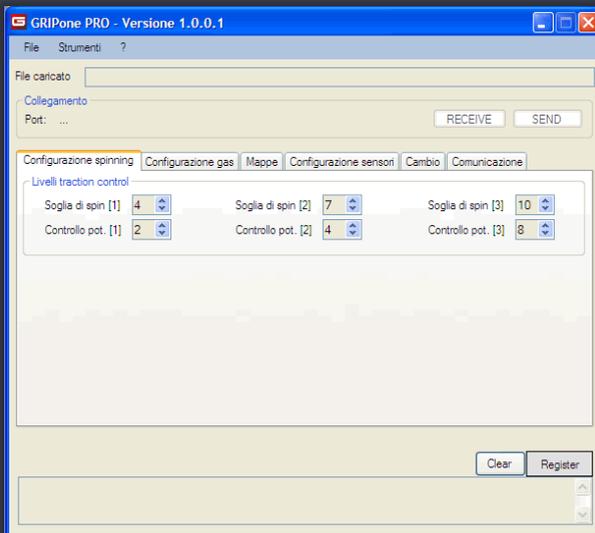
Fig. 8

The software presents a menu bar, a command bar with the button "Send" and "receive" and a series of folders setup in the center.

8.2.1 Menu
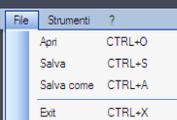
File > Open (ctrl + O)
Opens a previously saved configuration file. Each file contains all the necessary information to the controller to be programmed.

File > Save (ctrl + S)
Saves a configuration file previously opened or saved with "Save As". In each file are stored all the necessary information to the controller to be programmed
.
File > Save as (ctrl + A)
Saves a configuration file. Each file contains all the necessary information to the controller to be programmed.

File > Exit (ctrl + X)
Exit to the program.

Tool > Graph (alt + G)
Opens the window "Graphic". Graphic window (Figure 9) shows the effect of traction control by the spinning level.

Fig.9

Above is shown the name of the associated file. In the center is shown the graph of corresponding configuration parameters. The horizontal axis indicates the level of spin (scale or 35) and the vertical axis indicates the intensity of the control on the engine power (scale from 0 to 10).
Lower right it's show the color legend of the graphs. As you note there are 6 different colors. Blue is used for the graph of the base map (map 1), dark blue is used for the base map (map 1) when the signal of the gas is located in the "top area ", blue is used to map base (map 1) when the signal of the gas is located in the "bottom area. "
Red is used for the graph of the second map (map 2), the brown is used for the second map (map 2) when the signal of the gas is located in the "top area ", the orange is used for the second map (map 2) where the signal of the gas is located in the "bottom area".
On the left there is a panel with a few commands to manage the two graphs. Thickness map (1 or 2) allows you to modify the thickness of the lines of the graph. You can also choose to display only the line of the base map or just those of the second map, or both.
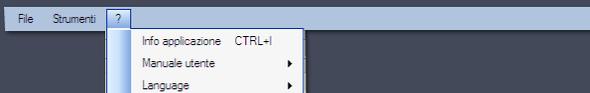
? > Application info (ctrl + I)
Opens a window with information about the version of the program.

? > User guide
Open the user manual on the website www.gripone.com

? > Language
Allow to the user to change the language.

8.2.2 Commands

In to the left of commands bar it's shows the communication port used by the PC to dialog to the control unit. On the right two buttons are shows: "SEND" and "RECEIVE". If the communications port is not active the buttons "Send" and "Receive" is disabled. To activate the connection port turn on the GRIPone ECU, connect the USB cable, browse to the folder "Communication", press the button "Update" and select the port used by the PC as a serial port.

SEND button
The Send button run the communication with the control unit and sends the configuration data currently set into the program. Pressing the button a new window shows the progress of the procedure. If the process is interrupted an error message will appear.

RECEIVE button
The Receive button run the communication with the control unit and receive the configuration data currently set into the GRIPone ECU. Pressing the button a new window shows the progress of the procedure. If the process is interrupted an error message will appear.

8.2.3 Configuration folders

In the middle of the program window there are six configuration folders: spinning setup, throttle configuration, maps, sensor configuration, gearbox and communication.
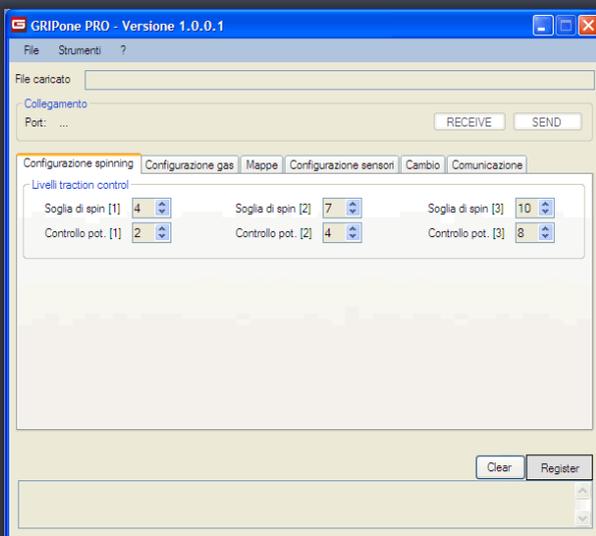
Fig. 10

Folder 1 (fig 10)
The first folder contains six configuration parameters: Threshold spin 1, Threshold spin 2, Threshold spin 3, Power Control 1, Power Control 2 and Power control 3.
The parameters "Threshold spin" represent the three spinning thresholds controlled by the ECU. Parameters Power Control represent the intensity of control on to the power of the bike.

During the motion of the bike the control unit keep checked the level of wheel spinning and compares it to the thresholds.
If the spinning ratio exceeds threshold 1, the GRIPone ECU activates the control, reducing the engine power as indicated by power control 1 parameter.
If the spinning ratio exceeds threshold 2, the GRIPone ECU activates the control, reducing the engine power as indicated by power control 2 parameter.
If the spinning ratio exceeds threshold 3, the GRIPone ECU activates the control, reducing the engine power as indicated by power control 3 parameter.

Folder 2 (fig 11)
The second configuration folder contains three sections: trhottle sensor calibration, throttle dependence (Top area) and throttle dependence (Bottom Area).
In the section of sensor calibration there are two buttons that allow the calibration of the signal which come from the throttle sensor of the bike. Before you can properly use the unit you must proceed to the sensor calibration.
To calibrate, follow these steps:

1. Switch on the main switch of the bike (not the engine, only the electric supply)
2. Swithc on the GRIPone PRO,
3. Connect the USB cable,
4. Fix the throttle to zero position (throttle close)
5. Press the Calibrate button (minimum position)
6. Fix the throttle to maximum position (throttle 100% open)
7. Press the Calibrate button (maximum position)
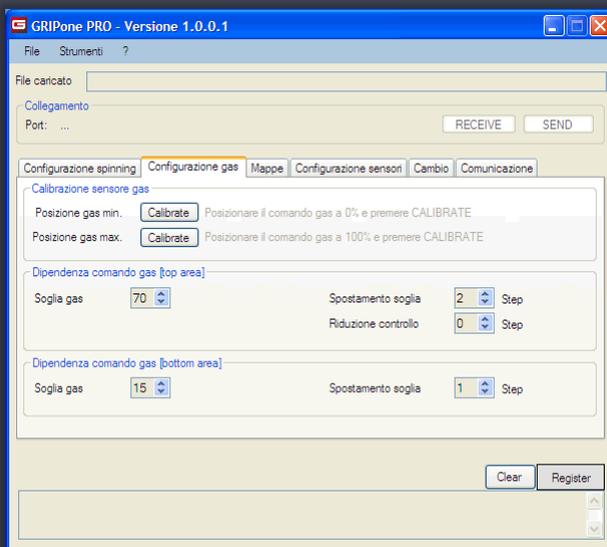
Fig.11

The section throttle dependence (Top Area) allows you to set the parameters who control the dependence of the throttle when it is fully open or almost fully open. After the calibration of the TPS (throttle position sensor), GRIPone is able to recognize the position of the throttle at all times (accuracy of 0.5% on a scale ranging from 0% to 100%).
The parameter "Throttle level" set the percentage beyond which is located in the "Top Area". When the throttle opening is more than this level the GRIPone PRO change the "spin level" and "power control" parameters. The spin level parameters are increased by the value of "Spinning level shifting". The power control parameters are decreased by the value of "control reduction's".

The section throttle dependence (Bottom Area) allows you to set the parameters who control the dependence of the throttle when it is fully close or almost fully close. The parameter Throttle level set the percentage under which is located in the "Bottom Area". When the throttle opening is less than this level the GRIPone PRO change the "spin level" parameters. The spin level parameters are decrease by the value of "Spinning level shifting".

Folder 3 (fig 12)
The Folder maps allows you to configure the GRIPone unit when used with the accessory module "Remote Control". The Remote Control has a toggle switch that allows user to change the sensitivity of spinning level of the rear wheel. When the remote control is disconnected or off, the unit works according to configuration parameters (included in folder 1). When the user activate the remote control the parameters "Threshold spin" are increased of a number of steps equal to the value of the parameter "threshold shift up".
Acting on the Remote Control the user can has two different maps: one relating to the parameters "Threshold spin" normally set and a second with the parameters "Threshold spin" increased by "threshold shift up".
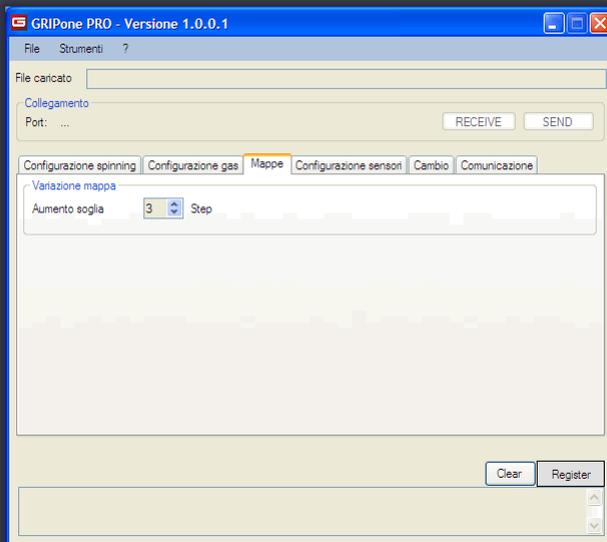
Fig.12

Folder 4 (figura 13)
The folder "Hardware configuration" is divided into two sections : Speed sensor and RPM signal. The section speed sensor allows the configuration of sensors applied to the wheels. "Front pulse" defines the number of pulses detected by sensors attached to the front wheel. "Rear pulse" defines the number of pulses detected by sensors attached to the rear wheel.
The parameter Wheel dimension fr defines the development of front tire (in centimeters). The parameter Wheel dimension rr defines the development of rear tire (in centimeters).
GRIPone PRO use the RPM signal to manage the control on to the engine power. In to the section "RPM signal" the user can choose between two options: RPM as one pulse per cam shaft devolution or RPM as one pulse per cranck shaft revolution.
If the GRIPone PRO is installed by the plug&play cable the user must set one pulse for cam shaft revolution. If the GRIPone PRO is installed by the general cable the user must know the nature of RPM signal.
If this signal come from ignition coils the user must set one pulse for cam shaft revolution. If this signal come from dashboard or crank shaft pickup the user must set one pulse for crank shaft revolution.
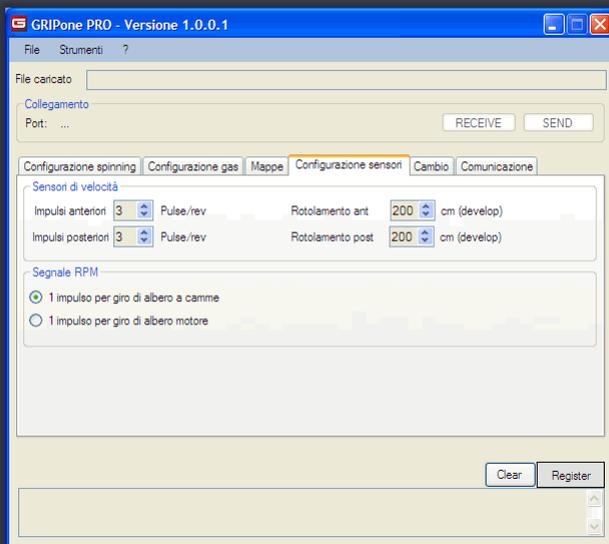
Fig.13

Folder 5 [fig 14]
In to the folder "gearbox" there are two parameters: gear shift timing and gear shift force. This two parameters allow to the user to set the accessory module GEARshift. The module GEARshift can manage the gear shift up automatically without the rider uses the clutch.
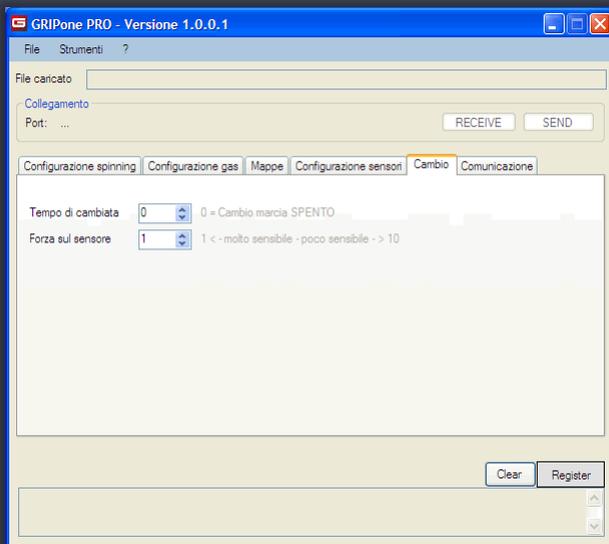
Fig. 14

Folder 6 (fig 15)
In to the folder "comunication" are displayed the serial port connected to the PC including that used for communication with the GRIPone. To check the port used by GRIPone follow thi steps:

- Switch on the GRIPone PRO;
- Connect the USB cable;
- Press the "update" button;
- Check the new port listed in the window;
- Select the one added;
- Switch off the GRIPone PRO.
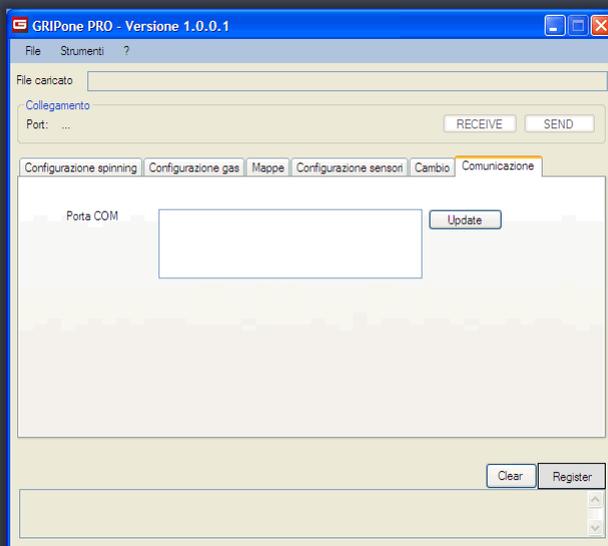
Fig.14

8.2.4 Register

In the lower parts of the program window there is a text register. Every action done by the program (send data, receive data, save file, etc.) are written on register. The user can clear the register pressing the "clear" button.

The controller GRIPone PRO is configured using the supplied software (downloadable from the site www.gripone.com). At first turned the unit is not programmed and therefore is unable to operate properly. To work properly the unit must be programmed with all the configuration parameters. Follow these steps to program.

1.   Switch on the GRIPone PRO and connect the USB cable.
2.   Run GRIPone PRO.
3.   Set all the parameters or open a saved file.
4.   Press the button SEND.
5.   Wait the write procedure.
6.   Disconnect the USB cable.
7.   Switch off the GRIPone PRO.

On first use the user must proceed with the throttle sensor calibration. Proceed as follow.

1.   Switch on the bike (without start the engine).
2.   Switch on the GRIPone PRO,
3.   Connect the USB cable,
4.   Run the GRIPone PRO software.
5.   Fix the throttle in minimum position (closed).
6.   Press the button " Calibrate (0 position).
7.   Fix the throttle in maximum position (100% opened).
8.   Press the button " Calibrate (100% position).
9.   Disconnect the USB cable.
10. Switch off the the GRIPone PRO and the bike.

10.0 Configuration parameters

10.1 Parameters "Spin level" e "Power control"

10.1.1 Spin level (1, 2, 3)
The parameter Spin level adjusts the sensitivity of the unit to the spinning level of rear tyre. The parameter is adjustable on a scale ranging from 2 to 26. The maximum sensitivity is the value 2. An small slip of rear tyre is enough to switch on the traction control system. The minimum sensitivity is the value 26. An very big slip of rear tyre is required to switch on the traction control system.
The Spin level 1 must be smaller than Spin level 2 and Spin level 2 must be smaller than Spin level 3.
Valori: 2-26

10.1.2 Power control (1, 2, 3)
Parameter Power control adjusts the intensity with which the GRIPone PRO control the engine power when it detects an excessive spin of rear tyre. The parameter can be varied from the minimum value 0 to the maximum 10. Fixing this parameter to 0 (zero) the GRIPone PRO doesn't work on engine power.
The minimum intensity of control is obtained with the value 1. The maximum intensity of control is obtained with the value 10 Il valore 10 corrisponde alla massima intensità di controllo sulla potenza.
The intensity of power control described by Power control 1 is obtained when spinning ratio is bigger than Spin level 1.
The intensity of power control described by Power control 2 is obtained when spinning ratio is bigger than Spin level 2.
The intensity of power control described by Power control 3 is obtained when spinning ratio is bigger than Spin level 3.
Valori: 0-10

10.2 Parameters throttle dependance (Top Area)

GRIPone PRO are able to check the position of throttle and manage the Spin level and power control parameters. With this feature the user can obtain less control to the maximum throttle opening (top area). At same time the user can obtain more control and sensitivity at first touch of throttle (bottom area).

10.2.1 Throttle level
Throttle level specifies the threshold of throttle opening (expressed as a percentage) beyond which the unit enters the area known as the "Top Area". If the throttle opening is bigger than throttle level (Top Area) the spinning level parameters (folder 1) and power control parameters (folder 1) are changed by the value of "spinning level shifting" and Control reduction's. If the throttle opening is smaller than throttle level (Middle Area) the spinning level parameters (folder 1) and power control parameters (folder 1) remain unchanged.

10.2.2 Spinning level shifting
This parameter is measure of change of spinning level parameters (in folder 1) in case the Throttle opening is bigger than throttle level.

10.2.3 Control reduction's
This parameter is measure of change of power control parameters (in folder 1) in case the Throttle opening is bigger than throttle level.

10.3 Parameters throttle dependance (Bottom Area)

GRIPone PRO are able to check the position of throttle and manage the Spin level and power control parameters. With this feature the user can obtain less control to the maximum throttle opening (top area). At same time the user can obtain more control and sensitivity at first touch of throttle (bottom area).

10.3.1 Throttle level
Throttle level specifies the threshold of throttle opening (expressed as a percentage) under which the unit enters the area known as the "Bottom Area". If the throttle opening is smaller than throttle level (Bottom Area) the spinning level parameters (folder 1) are decreased by the value of "spinning level shifting". If the throttle opening is bigger than throttle level (Middle Area) the spinning level parameters (folder 1) remain unchanged.

10.3.2 Spinning level shifting
This parameter is measure of change of spinning level parameters (in folder 1) in case the Throttle opening is smaller than throttle level.

10.4 Parameters maps

The control system GRIPone PRO, used with the accessory remote control, offers the possibility to have two different configurations. Remote control via a toggle switch (located to the handlebar) lets the user select two different configurations, even when the vehicle is in motion. The first configuration meets the parameters normally set. The second configuration meets these parameters changed by the value of threshould shift up.
The parameter Threshould shift up affects the spin leve 1, 2 and 3. By activating the switch of the Remote Control the parameters spin level (1, 2 and 3) are increased. In this way, by acting on the Remote Control the user can desensitize the system of traction control.

10.5 Parameters Gearbox

In the folder there are two parameters that allow the configuration of the module (accessory) gearshift. The parameter Gear shift timing set the time of the ignition cut needed to put the next gear. If this parameter is fixed to 0 the module GEARshift does not cut the ignition. If this parameter is fixed to 1 the user obtain the shortest ignition cut interval. If this parameter is fixed to 10 the user obtain the longest ignition cut interval.
Gear shift force set the force needed on gear shift bar to put the next gear. If this parameter is fixed to 1 the user obtain the maximum sensitivity on gear shift bar. If this parameter is fixed to 10 the user obtain the minimim sensitivity on gear shift bar.

11.1 Logic operation

GRIPone PRO, via the parameters "spin level", allows the user to manage the instant when the system starts to reduce engine power. Increasing the value of this parameter the user increases the level of spinnig required for the initiation of control.
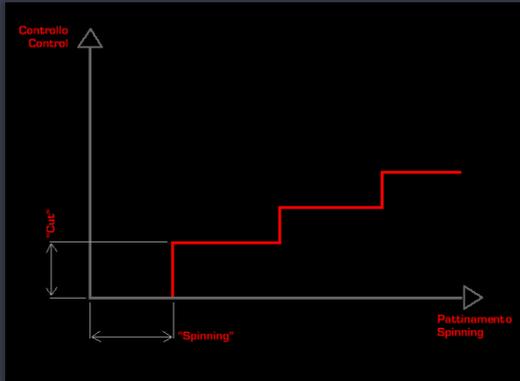
The parameters Power control instead allow the user to change the intensity with which the unit GRIPone PRO defuse the engine power. Increasing the parameter the user increases the intensity of the intervention on the engine.

11.2 External factors that influence the functioning

The GRIPone can be influenced by some external condition. The first factor than can influence the system is the type of engine of the bike. The same regulation of the system can be right for a 4 cylinder engine and wrong for 2 cylinder engine. For this reason we suggest to adjust the parameter "power control" on based of the type of engine..

Another factor that can influnce the system GRIPone is the riding style of the rider and the style of throttle using. A rider that use the throttle very smoothly can give less strees to the tyre. They also can have less spinning. A riders with aggressive riding style put more strees on the tyre and they obtain more spinning by rear tyre.

Another factor that can influence the work of the system is tyres profile. Using a racing profile tyres the real develop of the tyre change by the angle of leaning. In that condition the system can be quite sensible at the maximum angle of leaning and less sensible at the mid angle. Please adjust the parameters "Spin level" to avoid a excessive sensitivity at maximum angle (increasing this parameter).

Note: The suggestions above about the parameters "spinning" and "cut" can help the user to find quickly the right regulation.

ATENTION

Please keep in mind that the traction control system does not preclude crash caused by a wrong use of the throttle of the veichle in general. For this reason we suggest to test the work of the system and its effect on the byke carefully. Please try the different regulation by small step and do not exaggerate with the use of throttle..

The control unit GRIPone is designed for connecting the Remotecontrol, a device that enables the display of control activity. The Remotecontrol, once connected and positioned so as to be visible while driving, inform the pilot when the traction control system comes into operation. At any time the GRIPone reduce the engine power the three led of Remotecontrol is switched on.

The Remotecontrol also allows you to change the sensitivity of the system in real time, while driving the bike. Using the lever (positioned on the handlebar by the plate included) you can change the sensitive of base map pre set in GRIPone. Acting to the remote switch the sensitivity is varied as you were acting on the parameter spinning.
Remote control module is connected to the controller through the connector GRIPone PRO AUX (5pin connector) on the side (connector N.4)

As the main switch even the remote control switch have a verse of mounting (see the above figure). Moving the selector to the left the map pre-set in GRIPone unit is activated. Moving the selector to the right position the system become less sensitive (the gap depend on parameter included in folder maps).
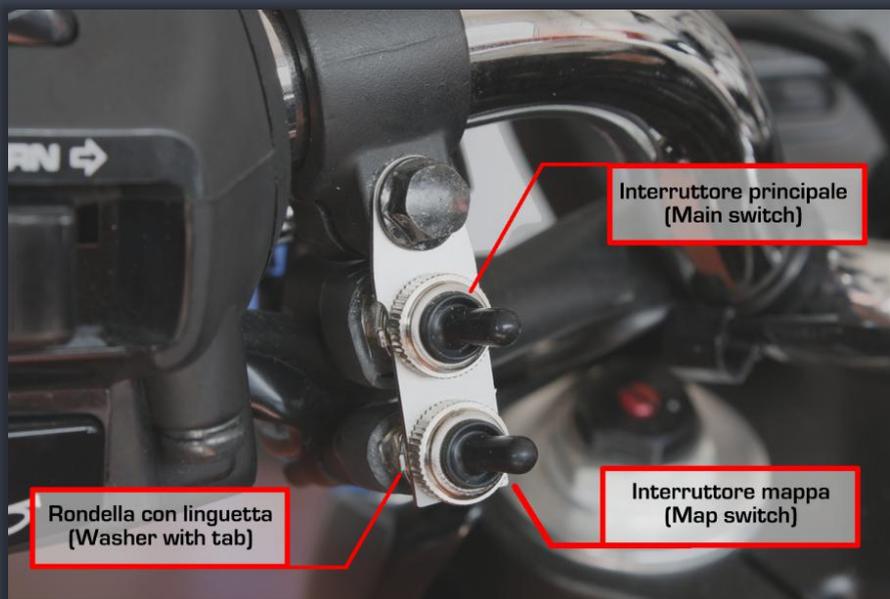
Interruttore principale
(Main switch)

Interruttore mappa
(Map switch)

Rondella con linguetta
(Washer with tab)

Features	Rif.
Power:	11-18 volt
Dimensions:	87x56x29 (mm)
Weight:	250g
Min speed:	about 30 Kmh
Max speed:	about 360 Kmh
Max Revs	about 20000 RPM
Min dimension of front tyre:	185 cm
Max dimension of front tyre:	220 cm
Min dimension of rear tyre:	185 cm
Max dimension of rear tyre:	220 cm
Wheel pulses for revolution	min 3 – max 10

14. Spare parts

Description	Code	Note
Kit GRIPone	XGRIP ONE	Contens: 1 GRIPone ecu, 2 speed sensors, 1 wiring, 1 user manual
Speed sensor	XSENSORI GRIP	
3 pole connector female	XBINDER3_F	
3 pole connector male	XBINDER3_M	
5 pole connector female	XSUPERSEAL5_F	Without terminals
5 pole connector male	XSUPERSEAL5_M	Without terminals
Terminals for 5 pole connector female	XSUPERSEAL_METAL_F	
Terminals for 5 pole connector male	XSUPERSEAL_METAL_M	

15. Sensors

Features	Description
Type:	inductive proximity
Power:	12-24 Volt
Output:	NPN NO – open collector
Schield:	yes
Sensing distance	max 2mm
Operating frequency:	0 – 1500 Hz
Dimension:	M8 x 1
Operating temperature:	-40° +85°
Material:	steel inox
Torque::	max 0.5 Kg/m

Distributor:

Information:
FG SPECIAL PARTS s.a.s.
Via Torricelli 103
40059 Medicina BOLOGNA
Italy
URL: www.fgspecialparts.it
EMAIL: market@fgspecialparts.it

Write here your regulations

Date	Track	Weather	File name	Lap time

Note