SGRACE-CUT INJ by

The SGRACE is our latest high performance design. We have put an enormous amount of energy in the form of time, technology and knowledge to create a reliable and innovative product. It is a "Strain Gauge" sensor style that ensures long lasting performance. To bring this product into reality we have used all the manufacturing tricks, electronic formulae and rendered a keen eye on software support to make this happen. This product is encouraged to use in a on a closed circuit only. It is not homologated for road use. The manufacturer of this product is not liable for any injury or damage to the operator, vehicle, or third parties from the use of this product. **MADE IN ITALY**

DISCLAIMERS

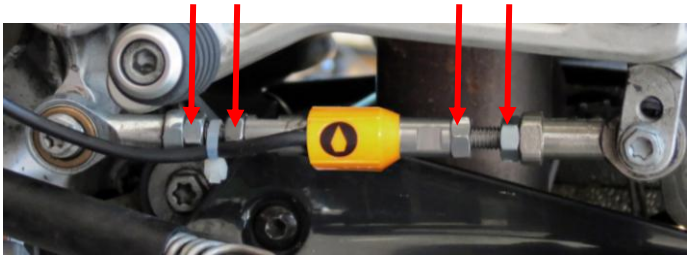
- System setup must always be done when bike is at complete halt and is parked on stands.
- A wrong setting could affect, partially or fully, the system's effectiveness, ultimately damaging the gearbox.
- System setting is the responsibility of the user and not of the manufacturer. While fixing sensors, take extra caution to not damage while screwing and unscrewing the bike. It is a delicate product.
- The use of this product is at the total discretion of the private parties.
- Each system modification, both of hardware and software, as well as harness or single components, could affect the system functionality. It can do potential damage or cause injury to the user, vehicle, or to third parts and this will negate the product warranty.
- Installation must be done carefully It is mandatory that you follow instructions provided in the manual book. After installation it is highly recommended that you do proper test of the product before riding on.
- Installation is an extremely crucial setup for system efficiency. Be sure it is done by competent and specialized mechanic.

This manual is issued on Feb 21st 2019 in Rev. 4.0. It is the end user's responsibility to periodically visit the website www.irccomponents.it in order to check for revised and updated manual guides.

1. SENSOR INSTALLATION

WARNING: SGRace ECU If connected to the ignition harness of CDI engine it can damage the ECU of the SGRACE. In such a scenario either contact the support team for a solution.

Sensor has "magic threads" i.e. both right and left. Connect the sensor (LABELED SENSOR) to the provided shiftrod. Cut it if necessary. Tight the nuts and the eventual grubs to avoid disconnections and loss of functionality due to vibrations.



Install sensor and rod with uniball links on both ends, most bikes have uniballs stock, check that the shiftrod does not rub or touch anything. Put sensor far from very hot parts. Make sure wire has a slight bend/loop so it does not tighten up and pull at the sensor during up or down shift.

Warranty does not cover ripped out wires.

WARNING: To adjust sensor positioning, act on the proper planes. Sensor failure could occur of acting on the cover.

2. DISPLAY

After switching on the system, the ECU makes a general check and, if passed, the display will show the firmware version.

WARNING: Do not start any process, setting or action on sensor until the above routine is completed.

When the pre load threshold has passed (par. 3.3), the display will show "--" .

In case of failure, the display will show an "**E**" followed by a number. Give this code to the assistant.

3. INITIAL SET UP

To set up initial program press both the buttons to enter into the system.

Push lower button to **scroll the menus forward**.

Push the upper one to **scroll the menus backwards**.

Press and maintain the lower button to enter into the various menus.
To confirm the setting and exit from the menu and undermenues, press upper button.
System will go out of programming session if no button is pushed except the “r” menu. Also during programming, the quickshifter is disabled.
The sytem is provided fully working. Just properly set “CE” (par. 3.8) to immediately enjoy the blipping. However all parameters are set in safety way. Every rider must properly adapt the system to his own riding mode.



WARNING: Act only on the following setup options.

*3.1 Cut Time programming "**t**"*
Default setting is 60ms. It can be adjusted within 20÷99ms.
*3.2 Choice of cut type "**tp**"*
Choose "**F**" to see fixed time; "**U**" to automatically adjustable time. In this case ECU modify the cut time in function of **rpm**, acceleration and makes a "**smooth**" cut to ease the shock loads on the gear box and chain. It also reduces loss of traction at **upshift**.
*3.3 Pre Load adjustment to "**L**"*
The default setting is set at "**12**" and it can be customized according to the need. Keep the ignition on and engine off to try to select the upper gear. Shift lever should move through the spring load in gearbox until gear resistance is felt. If rpm is above the set value at par. 3.8, the panel LED will display **"--"** for a while. If this happens too early or too late, then consequently change the preload set.
*3.4 Actual Load displaying "**S**"*
To read the value of actual load select this menu. This feature is also useful for preload adjustments and to check gearbox wear and is convenient to maintain the system.
*3.5 Max Load displaying **"--"***
At this point, pressing and holding the lower button, the display will show blinking "--" for about 10s. Afterwards it will show the max load value registered in this period. This feature is useful for preload adjustment and for gearbox reliability and maintenance.
*3.6 Actual **rpm** displaying "**r**"*
If you chose setting mentioned in 3.2 as "U", then **rpm** as measured by the ECU will be displayed. Please cross check if it is aligned with the real engine rpm.
*3.7 rpm adjuster "**rS**"*
The rpm visualization (3.6) can be adjusted by the following method. Use this feature to multiply or divide the rpms as considered by the SGRACE. Divided ".2" and ".4", Multiplied "2" and"4".
*3.8 Minimum rpm limit "**Sr**"*
Set **rpm** below which the system is not cutting. Visualization: /1000.
*3.9 Type of analog output "**dS**"*
If your system has the analog output function then, this function allows you to set the type of output: "dC": 0÷5V with 0 load at 2.5V. "dU": 0÷5V with 0 load at 5V. "DD": 0÷5V with 0 load con at 0V.
3.10 Bottom/Upper limits "dr"
If your system has the analog output, you can set value as "5"=±50Kg, or "10"=±100Kg.
3.11 Pushing/Pulling"CE"
"C" means Pushing and "E" means Pulling.
3.13 Smoothness "rr"
If you chose for dynamic cut "**U**" (Refer 3.2), higher values mean increase in smoothness. Initially set the ideal upshift rpm. Visualization: /1000.

4. CONNECTIONS

Connect the proper harness you find in the kit to the injectors. No matter the order. Just connect to all injectors. If connectors provided are more than used on the bike, simply leave the unused connectors as they are or seal them. Don’t connect each other.
Connect **Black** wire to the battery ground.
Otherwise consider that **Red** wire is the positive IN (and is powered +12V), **White** is the positive OUT, **Blue** is **Rpm** and Black is ground.
On the supplied harness, **Red** wire is the positive IN (and powering +12V), **Orange** is the positive OUT, **Blue** is the rpm to be connected to a negative pulse wire of a coil or to another **rpm** signal.

5. ANALOG OUTPUT FOR DATA LOGGERS

An unused **Green** wire comes out from the connector. Connect it to your data logger or shifting ECU if you have one. Output is 0÷5V. Refer to the paragraph 3.9 and 3.10 for further information on setup.

6. TROUBLESHOOTING

6.1 System continuosly cut or blipping even if the foot isn’t acting on the pedal: check the sensor. Tight the nuts and the eventual grubs to avoid disconnections and loss of functionality due to vibrations as per Par.1.

6.2 System works in reverse manner: check and properly set “CE”.

7. WORKING CONDITIONS

10÷17.5V; -20°C÷+95°C

Enjoy your choice. We value your business with us.
For any questions or troubleshooting queries, please contact us at:
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