

# SGRACE-CDI for SKORPION by



The SGRACE is our latest high performance creation; we have put down an enormous amount of energy both in time, technology and knowledge to create a reliable and innovative product. It is a "Strain Gauge" sensor type that, thanks to own electronic and manufacturing tricks, guarantees reliable and long lasting performances. This product is intended for use on a closed circuit only. It's not homologated for road use. The manufacturer of this product is not liable for any kind of damage or injury deriving to the operator, vehicle, or to third parties from the use of this product.

**MADE IN ITALY**



## DISCLAIMERS

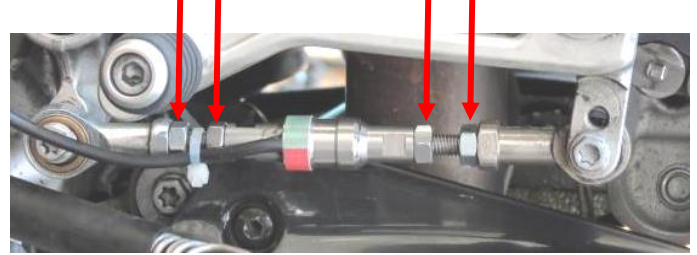


- System setup must always be done with bike stop and on stands.
- A wrong setting could affect, partially or fully, the system effectiveness damaging the gearbox.
- System setting is responsibility of the user and not of the manufacturer. Take care to sensor fixing to avoid it unscrew or interfere with other parts of the bike.
- The use of this product is at the total discretion of the private parties.
- The manufacturer of this product is not liable for any kind of damage or injury deriving to the operator, vehicle, or to third parties from the use of the product.
- Each system modification, both hardware and software and harness or single components, could affect the system functionality with potential damage or injury caused to the operator, vehicle, or to third parts and delete the product warranty.
- Installation must be done carefully following these instructions. It's strongly recommended to test the product and the bike after the installation.
- Installation is a very critical operation for system effectiveness. Be sure that it is done by competent and specialized personnel.

This manual is issued on 2017 October 08<sup>th</sup> in Rev. 4.0. It's the end user responsibility to periodically visit the website [www.irccomponents.it](http://www.irccomponents.it) in order to check new releases of the manual.

## 1. SENSOR INSTALLATION

Sensor has "magic threads" i.e. both right and left. Connect the sensor to the shiftrod (not included in the kit), 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, could impair sensing. 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 doesn't cover ripped out wires.



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

## 2. CONNECTIONS

Connect the long **Red** wire to an ignition switched + 12v source like for instance a stop light (check it provides +12V when ignition is on).

Connect the **Black** wire to the battery ground.

Take the harness you find in the kit.

Locate the coil. Unplug **Red/White** wire and connect it to **Red** wire with male faston of the IRC harness.

Connect the **Orange** wire with female faston of the IRC harness to the coil.

Take the **Blue** wire of the IRC loom and wrap it around the spark plug cable (10÷15 times).



Any position in between coil and spark is good.  
Secure it with more vulcanizing tape:



### 3. DISPLAY

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



**WARNING:** don't act on the sensor till this procedure has finished.

Whenever the pre load threshold is passed (par. 4.3), the display will show "--".

In case of failure, on the display will appear an "E" followed by a number. Give this code to the assistance.

### 4. INITIAL SET UP

Press both buttons to enter in the programming.

Push lower button to scroll the menus forward while push the upper one to scroll backwards.

Press and maintain the lower button to enter into the various menus. To exit from the menu and undermenus, press upper or both buttons. System will go out of programming if no buttons are pushed except the "r" and "S" menus. During programming, the quickshifter is not working.



**WARNING:** Act only on the following setup options.

#### 4.1 Cut Time programming "t"

Default setting 60ms. It can be adjusted within 20÷99ms.

#### 4.2 Choice of cut type "tp"

Choose "F" for fixed times (as 90% of competitors), "U" for adjustable (top brand capability). In this case ECU modifies the cut time in function of rpm, acceleration and makes a "smooth" cut to ease the shock loads on the gear box and chain and to lessen loss of traction at up shift.



**WARNING:** "U" feature functionality on CDI systems is strictly related to the reading of spark pulses described on par 2. For this reason this feature can't be guaranteed.

#### 4.4 Pre Load adjustment "L"

Default setting "17". it's possible to change the load necessary to apply on the sensor for having the upshift signal. With ignition on, engine off, 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. 4.8, the panel led should show "--" for a while. If this happen too early or too late consequently change the preload set.

#### 4.5 Actual Load displaying "S"

Entering in this menu it's possible to read the actual load value. Useful feature for preload adjustment.

With ignition on, engine off, try to select the upper gear. Shift lever should move through the spring load in gearbox until gear resistance is felt. Display will show a value. Use it to set the initial value of "L" (4.4), then modify it in the around, to find the perfect value according to the bike and lever-rod linkage.

##### 4.5.1 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 Useful feature for preload adjustment.

#### 4.6 Actual rpm displaying "r"

Rpm as considered by the ECU will be displayed. Check they are in line with the real engine rpm.

#### 4.7 rpm adjuster "rS"

If the 4.6 is faulty, use this feature to multiply or divide the rpms as considered by the SGRACE. Divided ".2" and ".4", Multiplied "2" and "4".

If no value is shown, change the numbers of turns of the **Red** wire around the spark plug cable. Try to add or to reduce a couple of turns until the system will be capable of reading.

#### 4.8 Minimum rpm limit "Sr"

Set rpm below which the system is not cutting.  
Visualization: /1000.

#### 4.11 Pushing/Pulling "CE"

"C" Pushing, "E" Pulling.

#### 4.13 Smoothness "rr"

If you chose for dynamic cut "U" (par 4.2), higher values means smoothness increase. Initially set the ideal upshift rpm. Visualization: /1000.

### **5. WORKING CONDITIONS**

8÷17.5V; -20°C÷+95°C

We appreciated your business.

For every questions and problem contact us any time through: [SG@irccomponents.it](mailto:SG@irccomponents.it) Phone: (+39)0108938654

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