

SGRACE-FLASH-4



The SGRACE_FLASH_4 will allow you to make upshift, Launch Control, wheelie Control and Speed Limiter for your bike.

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 engine and causing injuries to rider.
- System setting is responsibility of the user and not of the manufacturer. Take care to parts 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 Feb 10th 2016 in Rev. 3.0. It's the end user responsibility to periodically visit the website www.irccomponents.it in order to check new releases of the manual.

1. CONNECTIONS



WARNING: SGRACE_FLASH acts the cut on +12V lines. Connection to ignition harness of CDI engine ECU damage the unit. In this case

connect the system to injector (no plug&play harness included) or contact the support to find a proper solution.

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 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. 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.

3. 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 "U" menu. During programming, the system is not working.



WARNING: Act only on the following setup options.

3.1. QUICKSHIFTER SETUP

Enter in the "CA" undermenu.

3.1.1 Cut Time programming "t"

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

3.1.2 Choice of cut type "tp"

It's possible to choose between the following options:

"F": fixed times.

"U": adjustable times. In this case the electronic unit 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 and to lessen loss of traction at up shift.

"R": for Automatic quickshifter. In this case the electronic unit monitors the load cell and rpm to perfectly determine the exact timing when the gear is engaged.

From menu "A" it's possible to enter in the following undermenus:

3.1.2.1 Gear preset "tt"

This setup can be done both on stand (preferred) or on road, If speed sensor is on the front wheel only setup on road is possible.

After setting "1", do 6 upshift without using the clutch, for about 5÷10 seconds each or if on road, min 50m. When 6th gear is set, try to upshift again.

During this setting downshift is allowed. Not necessary to do all 6 gears upshifting in sequence. Avoid to pull clutch lever for a long while.

After the gear recognition the upshift will immediately become smooth in any condition.

3.1.2.2 Gear reading "Lt"

In order to check gear preset procedure, entering in "Lt" menu it's possible to read the current gear (if speed sensor is reading). Above 2000rpm the unit must correctly read the gear. If it isn't correct, repeat the above test 3.1.2.1.

3.1.2.3 Minimum cut timing "St"

Minimum cut timing. This is for preventing too short upshifting. Default setting 40ms. Adjustable in the between 20÷120ms.

3.1.2.4 Smoothness of power cut/in "LS"

It's possible to choose between 4 different kind of smoothness:

"H": Hard not smoothness.

"N": Normal,

"S": Smooth,

"US": Ultra Smooth.

3.1.3 Commonly closed/open circuit "OC"

If direct cut this parameter hasn't any influence.

"O": commonly open circuit, default value for mostly all ECU, "C": commonly closed circuit, for Power Commander V and some others.

3.1.4 Pre Load adjustment "L"

Default setting "12" 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. 3.1.8, the panel led should show "--" for a while. If this happen too early or too late consequently change the preload set.

3.1.4.1 AUTOMATIC pre load adjustment "L"

Press lower button and then, the upper one together. System will enter in preload auto setting.

Do 15 upshift, preferred at no more than 75% of max rpm. At the end of this cycles the system will recognize the average load for the upshift.. Test the upshift and eventually modify the value at the above 3.1.4

3.1.5 Actual Load displaying "S"

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

3.1.5.1 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 and for gearbox reliability and maintenance.

3.1.6 Actual rpm displaying "r"

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

3.1.7 rpm adjuster "rS"

Set numbers of reading points for any engine rotation. Set in between 0.5÷40. To check the proper setting, go to 3.1.6.

3.1.8 Minimum rpm limit "Sr"

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

3.1.9 Type of analog output "dS"

If your system has the analog output, this function allows 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.

3.1.10 Bottom/Upper limits "dr"

If your system has the analog output, set "5"=±50Kg, "10"=±100Kg.

3.1.11 Pushing/Pulling "CE"

"C" Pushing, "E" Pulling.

3.1.12 Smoothness "rr"

If you chose for dynamic cut "U" (par 3.1.2), higher values means smoothness increase. Initially set the ideal upshift rpm. Visualization: /1000.

3.2 SET UP LAUNCH CONTROL

Enter in the "LC" menu.

3.2.1 rpm limit "Lr"

Set the engine rpm you want to maintain fixed during starts.

"0" means disabled.

3.2.2 Cut Progression "P"

"0" means immediate power after the start,

"1" means pulsating power after the start.

3.2.3 Cut Timing "d"

If in 3.2.2 you choose "1" this is the amount of time the system control your start. Set between 1÷20.

3.2.4 Cut Smoothness "LS"

If in 3.2.2 you choose "1" this is the smoothness of the cut i.e. how long you want the pulsation after the start. Set between 1÷7.

3.2.5 Actual rpm displaying "r"

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

3.2.6 rpm adjuster "rs"

Set numbers of reading points for any engine rotation. Set in between 0.5÷40. To check the proper setting, go to 3.1.6.

3.3 SET UP SPEED CONTROL

In case of Speed limiter feature a switch is included.

Take care that the "ON" position is this one.



A carbon plate is supplied to ease your installation.

Enter in the "SL" menu.



WARNING: In all other cases, proceed to setup: 3.4.1, 3.4.2, 3.4.3, 3.4.4, 3.4.5.

3.3.1 Pinion teeth "dP"

Set the number of Pinion Teeth.

If the speed signal wire is connected to an external sesor on the wheel, set it to "30".

3.3.2 Sprocket teeth "dC"

Set the number of Sprocket Teeth.

If the speed signal wire is connected to an external sesor on the wheel, set it to "30".

3.3.3 Number of speed pulses "PL"

Number of speed sensor reading points per revolution.

If the speed signal wire is connected to the bike ECU, usually it is 2 or 4.

3.3.4 Wheel Circumference "CA"

Set the wheel circumference.

Take the wheel circumference (where you have the speed sensor).

Take it in mm.

CA are the first 2 digits. For instance, if the circumference is 1975mm, CA is "19"

3.3.5 Wheel Circumference "Cb"

Set the wheel circumference.

Take the wheel circumference (where you have the speed sensor).

Take it in mm.

Cb are the last 2 digits. For instance, if the circumference is 1975mm, Cb is "75"

3.3.6 Type of cut "tC"

"F" is fixed cut i.e. not possible to pass the set speed.

"P" is pulsating cut i.e. the system only gives a warning 0.5s cut. After this it will be possible to pass the set speed.

3.3.7 Switch feature "in"

Set "0": the switch will work activating or deactivating the speed limiter at the set speed according to par. 3.3.8.

Set "1": the switch will work cutting at the current bike speed in the moment you are activating the switch.

3.3.8 Limit Speed "UL"

Set limit speed.

3.3.9 Actual Speed Displaying "U"

Speed as considered by ECU is displayed. Refer to it to adjsut the varios parameters.

3.4 SET UP WHEELIE CONTROL

WARNING: For using this feature it's necessary to install a speed sensor in the front wheel. It must be a PNP or NPN 0÷5V. Be sure it properly reads i.e. signal clearly change when sensor is on the target or not. Our sensors reads below 1mm distance.



Enter in the "Cl" menu.

3.4.1 Delay of acting "RI"

Set 0÷40. Default "0". They are the 0,1s delay the system consider before acting.

3.4.2 Smoothness of cut "LS"

Set 0÷5. Default 5. higher means harder cut.

3.4.3 Number of speed pulses "PL"

Number of speed sensor reading points per revolution.

If the speed signal wire is connected to the bike ECU, usually it is 2 or 4.

4. CONNECTIONS

Connect the supplied harness to coils (on some Ducatis to injectors), checking the red wire is connected to the +12V wire coming from coils 8or injectors). If not sure, contact the support service
Connect **Black** wire to the battery ground.

Connect the proper harness you find in the kit to ignition.

Otherwise consider that **Red** wire is the positive IN (and powering +12V), **White** is the positive OUT
Blue is the rpm signal.

On the supplied harness, **Red** wire is the positive IN (and powering +12V), **Orange** is the positive OUT, **Blue** do not connect

5. DATA LOGGER ANALOG 0÷5V OUTPUT

From the main connector there is a **Green** wire.
Output is 0÷5V. Refer to previous Par 3.1.9 and 3.1.10 for further details.

6. RPM AND SPEED SIGNAL CONNECTION



WARNING: Use only IRC sensors or npn type. Other sensors could affect functioning.

In case of IRC sensor:

It reads iron, no stainless steel, no magnet, no aluminum.

Reading sensor distance from target is 0.5÷1mm.

If possible make it read full on/off target and not holed bolts (if not possible don't worry it should work the same)

Check with a voltmeter that it reads 0÷12V oscillating when reading/no reading target.

A simple test is to set pit limiter at a certain speed and see if the system is correctly cutting.

If no IRC sensor, connect **Pink** wire to speed sensor signal.

The signal must be digital (oscillating 0÷5 or 0÷12V).

From main harness a **Blue** wire comes out. Connect an rpm signal.

REFER to your WIRING DIAGRAM. Below only general colors, not specific for your bike.

Usually:

HONDA:

SPEED It's a PINK/GREEN wire (VSS three pin connector)

RPM It's a yellow wire.

NOTE: The connector for the SPEED sensor is usually directly on the speed sensor which is located on top of the gear box. (directly under the tank) to the rear of the engine.

YAMAHA:

SPEED It's a WHITE/YELLOW wire on 3 ways connector of speed sensor, located below the fuel tank on the right side.

RPM It's YELLOW/BLACK.

SUZUKI:

SPEED It's a PINK wire (under the throttle body in a black cover).

RPM It's a GREEN/WHITE WIRE

KAWASAKI:

SPEED Usually it's a BLUE/YELLOW wire.

RPM It's a LIGHT BLUE wire.

7. SPEED SIGNAL CONNECTION

The system requires speed sensor pulse 0÷5V.

Connect **THICK Blue** to the Speed sensor wire.

If you connect the speed signal wire to the bike ECU you need to locate from wiring diagram the proper wire.

REFER to your WIRING DIAGRAM. Below only general colours, not specific for your bike.

Usually:

HONDA: It's a PINK/GREEN wire (VSS three pin connector)

NOTE: The connector for the SPEED sensor is usually directly on the speed sensor which is located on top of the gear box. (directly under the tank) to the rear of the engine.

YAMAHA: It's a WHITE/YELLOW wire.

SUZUKI: It's a PINK wire (under the throttle body in a black cover).

KAWASAKI: Usually it's a BLUE/YELLOW wire.

Suggestion for rpm signal: injectors have 2 wires, one of each is different colour in any injector. Take the rpm signal connecting the **blue** wire of the harness to one of these wires.

8. 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.com

Phone: (+39)0108938654 - Fax: (+39)0108932426

For urgent matters: (+39)3402682576