

IRC Components quickshifter uses a "Strain Gauge" style sensor that is IP65 rated with quick-disconnect plug. We have put an enormous amount of energy in terms of time, technology and knowledge to create a reliable performance-oriented product. We encourage using this product on a closed circuit only, it is not homologated for road use. IRC is not liable for any injury or damage to the operator, vehicle, or third parties from the use of this product. MADE IN ITALY.

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DISCLAIMERS

- System setup must always be done when the bike is at a 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 the sensors, take extra caution not to damage while screwing and unscrewing the bike. It is a delicate product.
- The use of this product is at the total discretion of 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 parties and this will void the product warranty.
- Installation must be done carefully. It is mandatory that you follow the instructions provided in the manual book. After installation it is highly recommended that you perform proper testing of the product before riding it.
- Installation is an extremely crucial setup for system efficiency. Be sure it is done by a competent and specialized mechanic.



WARNING

- Our blipper provides an additional throttle % when you need to downshift. If the engine revs are high, near the red line, the system will provide this acceleration but the bike ECU will cut it to avoid over revving damaging the engine. The result is that the gear could be not engaged or not properly engaged. We suggest not passing the 80% of max engine revs when you start downshifting.
- **Blipper works only at 0% throttle. Any other opening % could cause bike limp mode.**

1. INSTALLATION



VERY IMPORTANT: throttle twistgrip command with mechanical stop must be used. If your bike doesn't have it, replace the command or create a mechanical stop.

Some examples are DOMINO- Cod.51760, EURORACING- cod. EVO3, ACCOSSATO-ANY. The important is that the twistgrip has the half moon:

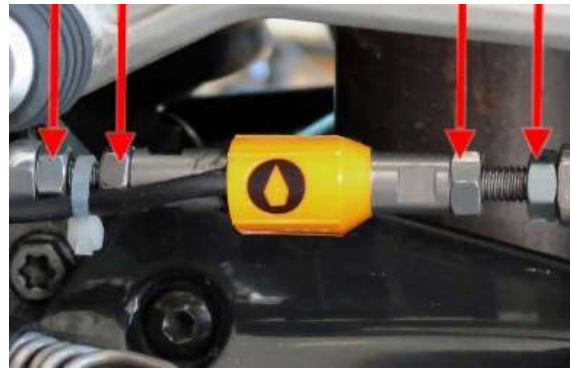


1.2 Load Cell installation

Sensor has "magic threads" i.e. both right and left. Connect the sensor to the shiftrod. Once you have connected it,

measure the shift-rod and cut it to customize it. After connecting, tighten the nuts and ensure the grub screws to avoid disconnections due to vibrations.

However, Install sensors and rod with uniball links on both the ends. Most bikes have stock uniballs. Check that the shiftrhod does not rub or touch anything, as this could impair sensing. Try to fix sensors that does not get in connection with heated parts while riding. Make sure wire has a slight bend/loop so that it does not tighten up and pull the sensors up or down while shifting. The warranty does not cover ripped out wires



WARNING

To adjust sensor positioning, act on the proper planes on it.
Sensor failure could occur if acting on the cover

2. BLIPPER CYLINDER BODY INSTALLATION

Now it's time to install the Blipper cylinder body. Refer to the following picture to understand how it must be positioned and how it's working:



2.1 Blipper Cylinder Body placing:

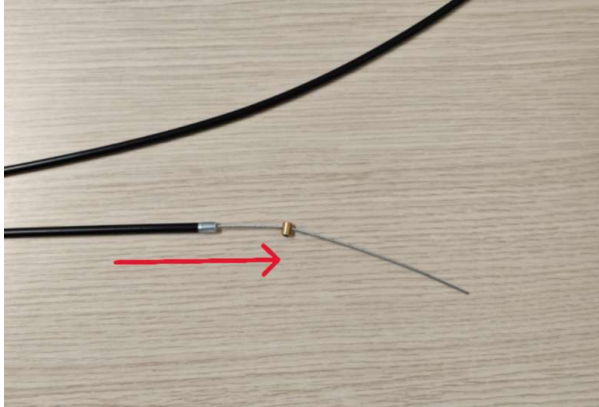
The Blipper Cylinder body must be installed with its holder, in a proper position. Check it's properly fixed and far from moveable parts of the motorcycle. The blipper cylinder body must be fixed straight towards the throttle body pulley.

Suggestions are on air box (Honda CBR600rr) or under front frame (Suzuki) or under seat, according to the easier installation. A couple of examples following:

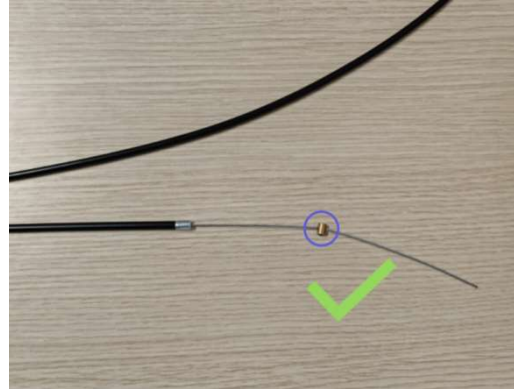


2.2 "Throttle" cable connection

Take the cable and pull it until you feel that it's at end stroke of black cylinder:



Once made, connect it on throttle body, using the locker circled in blue in picture here below:



2.3 Fix the actuator and cut the cable:

Now fix the Actuator that must be installed with its plate, in a proper position. Check it's properly fixed and far from moveable parts of the motorcycle. Wire movement inside its shield must be freely:



2.4 Cable from Blipper cylinder body to the actuator

VA universal cable is provided in the kit. Cut it according to your needs with registers in the middle in order to have enough adjustment travel.

Now connect the cable from Blipper cylinder body to the actuator, letting about 1mm free play.
Handly pull the actuator. Wire must move freely inside the sheath.
Check that the throttlegrip moves freely too.



Lock the wire clamps with soldering

2.5 Throttle opening % calibration

Find the TPS sensor wire from ECU output or from the sensor (It's a 3 wires connector). 1 wire is ground, 1 is +5V and 1 is signal that varies in function of the throttle opening. With a voltmeter check values at 0 and 100% throttle. Now calculate the value with throttle at around 15÷18%. For instance: 0 throttle: 0.5V, 100% throttle 4.5V, so:

$$\begin{aligned} 4,5 - 0,5 &= 4,5 \text{ volt} \\ 4,0 : 100 \times 15 &= 0,6 \\ 0,6 + 0,5 &= 1,1 \text{ volt} \end{aligned}$$

This value is the value we want when actuator is fully opened. So pull it by hand and adjust the cable stroke till you reach the desired value.

Check that when actuator moves, the twistgrip doesn't rotate. If it does, act on adjustments of the return cable in

order to adjust the free play. A little rotation if twistgrip is not kept by hand, is normal due to cables. Put your hand on and you mustn't feel any force from the actuator.

3. ELECTRICAL CONNECTION



3.1 Take the actuator and insert the 2 Red wires (no matter the order) into the Male Superseal connector provided.

Now plug it to the Relay group Female superseal connector:



3.2 Connect Red to battery +12V:



3.3 Connect the 2 black eyed wires to battery ground.



3.4 System powering:

Connect the Red wire of the 2 poles cable to a +12v underkey source

Connect the Black wire of the 2 poles cable to battery ground

3.5 Upshift connection:

In general consider that **Red** wire of the 5 poles cable is the positive of the signal, **Black** wire of the 5 poles cable is the negative of the signal; here following some tips to connect it to some aftermarket ECUs:

POWER COMMANDER 5 PCV:

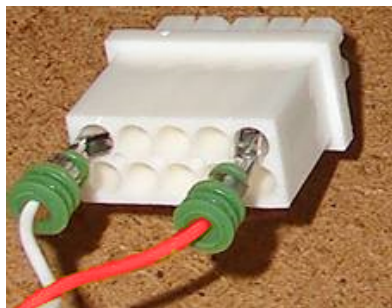
Connect Blue wire to an ignition switch controlled +12v source and Black to ground.

Connect White to PCV port 4 and Red to port 5.

Choose if necessary, the normally closed circuit as above par. 3.3.

POWER COMMANDER III USB:

Connect Blue wire to an ignition switch controlled +12v source and Black to ground. With the connector tongue towards the bottom and seen from wire side, connect the Red into the upwards right hole and the White into the upwards left hole.



RAPID BIKE EVO and PSC PRO:

Insert the connector as received, otherwise, with the connector tongue towards the bottom and seen from wire side, Blue on left position, Black and White together in the central position, Red in the right position.

RAPID BIKE 3:

Connect Blue wire to an ignition switch controlled +12v source and Black and White to ground. Connect the Red to the Rapid Bike Brown.

YEC:

Connect Blue wire to an ignition switch controlled +12v source and Black to the ground. Connect the Red and the White to the YEC ports. A Pulldown resistor could be necessary in between signal input and a +5V source.

YAMAHA MODIFIED IN YEC:

Connect the resistor as per modified YEC instructions. Should be one 10KOhm resistor between White/Red (signal) and Blue (L=+5V) of the YEC.

Connect Red wire of the SGRACE to the White/Red of the bike EXUP connector (A: PIN 25).

Connect white wire of the SGRACE to the Black/blue wire of the Exup connector.

Connect Blue wire to an ignition switch controlled +12v source and Black to the ground.

HRC:

Connect Blue wire to ignition switched + 12v and Black to ground.

Follow HRC ECU instructions. Usually connect the Red to the green/red (pos 27 QSSW) and the White to the ground (usually the green wire of the ECU where the horn is connected, but check). In some versions <06 connect the red to Pin22 (green/white wire). HRC harness has a positions for the strain gauge load cell quickshifter. DO NOT USE THEM. Set the cut time (suggested 65ms) as per par. 3.1.

3.6 Gearshift wire:

If you have gearshift sensor and if you want the gearshift management (No blip in 1st gear and no ignition cut in 6th gear), connect the **Green** wire that comes out alone from the IRC orange box to the gearshift sensor; connect it to the wire of gearshift sensor that changes Volts value when you change the gear. To check if wire is correctly connected, enter into parameter **1C** or **6U** and check that, changing gears, value displayed on that parameters have to change.

If you don't have gearshift sensor, connect the **Green** wire it to the battery ground.

3.7 Actuator wire:

Connect the **White** wire of the 5 poles cable to the **Orange** wire of the Actuator wires

3.8 RPMS wire:

Connect the **Blue** Wire to a RPMS reading source

3.8 Colour wires legend:

2 POLES CABLE:

BLACK: Ground wire

RED: +12v power wire

5 POLES CABLE:

BLACK: Upshifting negative signal

RED: Upshifting positive signal

BLUE: RPMS reading wire

GREEN: Gearshift signal wire

WHITE: Actuator wire

4. DISPLAY

At key on, the system will be powered and the ECU makes a general check. If passed, the display will show the firmware Version. Do not start any process, setting or action on sensor until the above routine is completed. In some Ducati the "key on" is not sufficient to maintain the unit powered but the engine must run. When the pre load threshold has passed (par. 3.4 and 3.7), the display will show "--". In case of failure, the display will show an "E" followed by a number. Give this code to the assistant

5. SETTINGS

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. However, to exit from the menu and submenus press upper or both buttons. System will go out of programming session if no button is pushed except the "r" menu. Also during programming, the quickshifter is disabled.



WARNING

Act only on the following setup. If a menu doesn't appear into the following list, don't modify it.

5.1 Signal time programming "T".

This is only a time for the OEM upshifting feature. If changed, no effect on the upshifting. Default "60"

5.2 Minimum rpm "rL".

The "Blip" and "Upshift" will not work below 3,000rpm. Above this limit the timing of the blipper is automatically set in function of customer's choice. "rL" are the lower rpm limit level. Default is "02".

5.3 Downshift timing "SL".

Set the desired timing of the "blip" at "rL" rpm (see par. 3.2).

Default is "20" for R6 2017, all other bikes "60".

5.4 Upshift Pre Load adjustment "L".

The default setting is set at "14" 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. The panel LED will display "--" for a while. If this happens too early or too late, then consequently change the preload set.

Default is "17".



WARNING

A too high preload could affect the gearbox reliability and makes the shifting "harsh". A too low preload could cause unpredicted up/ signal cut of power for a while.

So properly adjust this parameter

5.5 Actual Load displaying "S".

To read the value of actual applied load select this menu. This feature is also useful for preload adjustments and to check gearbox wear. A too high preload could affect the gearbox reliability.

5.5.1 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. This feature is useful for preload adjustment and for gearbox reliability and maintenance.

5.6 Downshift Timing "tS".

Set the "Blip" timing within 20÷98ms at 8,000 rpm. Default 98ms. The blip timing at 12,500rpm will be 70ms more than this value. In the between the CPU will interpolate the value. We suggest timings between 98 and 80ms. A too long timing allows gear in but then you'll feel the bike pushing a while. A too short timing doesn't allow a proper downshift. We suggest to start with high value and reduce it during the tests on road.

Default is "40" for R6 2017, all other bikes "90".



A too high preload could affect the gearbox reliability and makes the shifting “harsh”. A too low preload could cause unpredicted downshifting signal that can be dangerous because it “push” the bike ahead. So properly adjust this parameter

5.7 Downshift Pre Load adjustment "LS".

The default setting is set at "12" and it can be customized according to the need. Shift lever should move through the spring load in gearbox until gear resistance is felt. The panel LED will display "--" for a while. If this happens too early or too late, then consequently change the preload set.

Default is "16".

5.8 Pushing/Pulling "CE".

Referring to the upshifting, "C" Pushing, "E" Pulling. To properly set this parameter, engage the 2nd gear and try to put the 3rd. Look at the shiftrod: Is it compressing (C: Push) or extending (E: Pull)?

OEM rearsets require "E".

5.9 Normally Open/Closed circuit "OC".

"O": commonly open circuit, default value for OEM quickshifter and for most all additional quickshifter module,

"C": commonly closed circuit, for direct cut of coils (UPKIT) or for Power Commander V and some others.

If OEM bike has the upshifter, or if another additional upshift module is used, set it to "O", otherwise set it to "C". Default is "O"

5.10 Increase of blipping timing in 3rd-2nd and 2nd-1st gears downshifting "1A".

Sometimes the lower gears need a higher blipping timing to be properly engaged. 1A is the Increasing timing in 10 milliseconds. 01 means 10milliseconds. Default is "02".

5.11 Set value of 1st Gear "1C"

If the green wire is connected to gearshift sensor (see paragraph 3.6), use this parameter to set 1st gear value;

Enter into this menu, if possible with engine not running, with bike in 3rd gear. Then, put 1st gear, wait 2 seconds, then esc from menu keep pushed the upper button to save the value.

5.12 Set value of 6th Gear "6U"

If the green wire is connected to gearshift sensor (see paragraph 3.6), use this parameter to set 6th gear value;

Enter into this menu, if possible with engine not running, with bike in 3rd gear. Then, pus 6th gear, wait 2 seconds, then esc from menu keep pushed the upper button to save the value.

5.13 Smoothness "rr"

If OEM bike has the upshifter, or if another additional upshift module is used, set it to "00", otherwise, higher values mean increase in smoothness. Initially set the ideal upshift rpm. Visualization: /1000.

Default is "01".

5.14 Model bike "H"

Type of firmware. Don't change it. If accidentally changed, set to "02":

6. QUICK PRESETTING SUGGESTIONS

The system 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 own riding mode.

These are some suggestions:

4.1 Preloads setting: Give power, don't start engine, don't touch the lever, enter in the menu, go to "S" and check that you read "00" or oscillating "01", not more. Then put 3rd gear and try to push the pedal in the upshifting way till you just “feel” the gears load, not till the upper gear enter. You should read values between "08" and "17". Set this value in "L". Now try to push the pedal in the downshifting way till you just “feel” the gears load, not till the lower gear enter. You should read values between "08" and "17". Set this value in "LS". LS should be around L. Difference mustn't be higher than 2Kgs.

4.2 Blipping timings setting: concentrate on blipping in gears above 3rd and revvs above 10,000rpm. Is the bike “pushing” you after the downshifting? If yes, reduce “tS”. Is the downshifting “harsh”? Increase “tS”. After setting the above, now concentrate on blipping in gears above 3rd and revvs around 5,000rpm. Is the bike “pushing” you after the downshifting? If yes, reduce “SL”. Is the downshifting “harsh”? Increase “SL”.

Now check the downshifting in 3-2 and 2-1 gears. Is the downshifting “harsh”? Increase “1A”.

5.1 Bike doesn't start

Check upkit harness to the coil is well installed as per 4.2.

Check "OC" set in C.

Check ground wire on battery ground, not to the frame.

Check you don't have "E1" on the display. If yes, contact your dealer.

Check the sensor: Tight the nuts and the eventual grubs to avoid disconnections and loss of functionality due to vibrations as per Par.1

If a LIPO or any other lightweight battery is used, check it eventually replace it.

5.2 System continuously cut or blipping even if the foot isn't acting on the pedal:

Check ground wire on battery ground, not to the frame.

Check you don't have "E1" on the display. If yes, contact your dealer.

Check the sensor: Tight the nuts and the eventual grubs to avoid disconnections and loss of functionality due to vibrations as per Par.1

If a LIPO or any other lightweight battery is used, check it eventually replace it.

5.3 Blipper works, upshifting no:

Check "CE according to above par. 3.8.

Check ground wire on battery ground, not to the frame.

Check that when upshifting the display will show "- -" for a while and that you can hear a "click". If no, properly set "L" according to the above 5.1.

Check you don't have "E1" on the display. If yes, contact your dealer.

Check the sensor: Tight the nuts and the eventual grubs to avoid disconnections and loss of functionality due to vibrations as per Par.1

If a LIPO or any other lightweight battery is used, check it eventually replace it.

Check the "upkit" harness is well installed according to par. 4.3.

5.4 Upshift works, blipper no:

Check "CE according to above par. 3.8.

Check ground wire on battery ground, not to the frame.

Check that when downshifting the display will show "- -" for a while and that you can hear a "click". If no, properly set "LS" according to the above 5.1.

Check you don't have "E1" on the display. If yes, contact your dealer.

Check the sensor: Tight the nuts and the eventual grubs to avoid disconnections and loss of functionality due to vibrations as per Par.1

If a LIPO or any other lightweight battery is used, check it eventually replace it.

5.5 System works in reverse manner:

Check "CE according to above par. 3.8.

5.6 After blipping, especially at higher rpm, bike goes to limp mode

Check you are connected to APS not to TPS i.e. connect to the first connector you can, following the wires from the throttlegrip.

Reduce "SL" and "tS".

5.7 Gears aren't fully engaged during Upshifting or go out after a while:

Increase "t".

Check "L", according to above 5.1. Eventually increase/reduce it a couple of points and test.

5.8 Gears aren't fully engaged during Blipping or go out after a while:

Increase "SL" and "tS".

Check "LS" according to above 5.1. Eventually increase/reduce it a couple of points and test.

5.9 During blipping bike push ahead.

If at higher rpm (above 8,000rpm) Reduce "tS".

If at lower rpm, reduce "SL".

8. WORKING CONDITIONS

11÷17.5V; -20°C÷+60°C

Enjoy your choice.

For any questions or troubleshooting queries, please contact us at:
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