CORDONA
PRECISION TECHNOLOGY

Strain Gauge GP Quickshifter - GP SG

MotoGP Technology
Moto3 World Champion
with Honda Moto3 Racing
and
KTM Factory Moto3
www.cordona.net

Cordona Strain Gauge GP Switch Quickshifter, GP SG type 1.8/1.8.

Digital switch quickshifter used for various application connected to bike ECU's, PowerCommnder, RapidBike, Cordona PQ8 system. Multiple Moto3 World Championship winner.

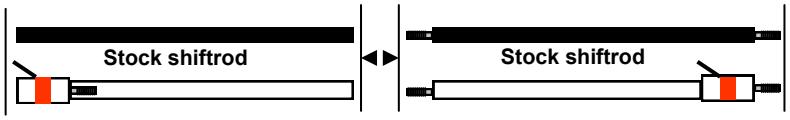
Main features and specification;

@ digital switch quickshifter - output can be set to close (t1) or open (t2) the loop for upshift
@ adaptive sensing of direction - upshift configurable for push or pull gear linkage
@ preload - adjustable from 1 to 40kg force needed for activation
@ strain gauge/load cell technology - no movable parts with very distinct and precise gear change
@ sensor design - fully sealed and super durable CNC high precision strainless steel sensor
@ 5-15v DC power supply
@ completely sealed and weather protected (IP68) sensor and module
@ magic threads- M6 right and left threads can be used in both ends
@ temperature, vibration and creep adjustments done automatically with high precision by 20Mhz processor for an absolute stable up shift signal in all riding conditions.
@ dimensions: 45mm long, 14mm diameter.
@ Sensor available as spare spart, will recalibrate new sensor automatically at power up.
Prototype tested to 603 000 activations with 45 kg force, about 12 years of use.

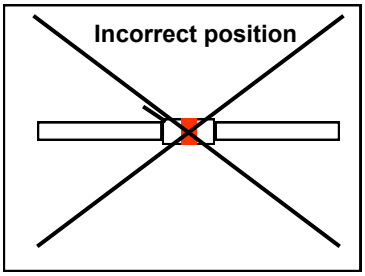
Installation;

Tools needed : 8mm and 10mm spanner, secure nuts with Loctite. If needed the aluminium rod can be shortened to fit. The rod have 25mm left and right threads in respective ends.

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, it could impair sensing.



Included shift rod and GP SG Switch toghether should equal the length of the stock shift rod. Sensor has Magic Threads so both Left and Right hand bolts can be used on both ends.



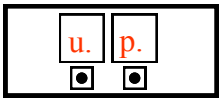
Do not bottom out the studs hard in the GP SG, it could impair sensing.

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.

Be careful to route the cable over sharp edges or hot engine componets

Initial set up

1. Switch ON ignition, the GP SG panel should light up if right button is pressed. Switch OFF ignition again and back ON while pressing both buttons (some bikes will have power on for 2 mintues after ign is switched off, if so, disconnect GP SG and plug back in while holding both buttons). Display **flashes up-up-up-up**.



2. Move shifter pedal and do a simulated **up shift from 2nd to 3rd gear** and hold the pedal for about 2 seconds; display goes black.

3. Now you have succesfully completed set up for your bike's direction of up shift. A new initial Set up can be done at any time in case you change bike or shift pattern.

4. **Test ride bike**. Start at low rpm and work your way up the rev range. Make sure to really move the shif-ter pedal swift and with force, don't try to caress the next gear in.

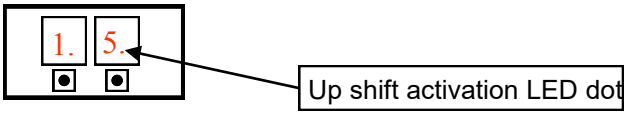
5. With ignition on, **Engine off,** shift to 6th gear and try to select a 7th gear (to avoid nasty noise from the gearbox). Shiftlever should move through the spring load in gearbox until gear resistance is felt, now activation of the up shift LED dot should be seen briefly on the panel.

6. Start the engine in 6th gear, **WARNING, make sure clutch lever is pulled all the way in to the hand-le bar, secure clutch lever with 2 zip ties and keep one hand on it so your bike does not take off out off control, creating a very hazardous situation.** Raise rpm above ON rpm set on quickshift device; do upshifts to 7th gear and make sure rpm dips breifly and then pick right back up again.

Preload (kg) change/ programming

The majority of our customers use 10-15kg.

To change up shift preload, can be set 1-40 (kg).
1. press right button, 2. while "15" is showing, hold both buttons until 15 starts to flash,
3. change value up or down, 4. hold both buttons until the new value stops flashing, preload change completed.



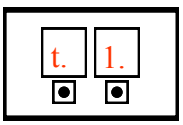
Max up shift preload is 40kg.
0 is off.

Change in between commonly closed circuit and open circuit

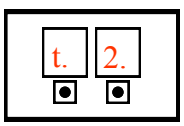
(default at delivery is t1 commonly open loop)

To set closed or open loop signal (shows as t1 or t2 in the display) follow this procedure;
Hold left button and then depress both buttons and hold for 10 sec, t1 will show;
continue to hold until t2 shows,
release both buttons, now the GP SG will have a commonly closed circuit loop.

**For Power Comander 5 set the GP SG to t2, commenly closed loop.



t1. Commonly open circuit. Used by 95% of quickshifters on the market. Default setting.



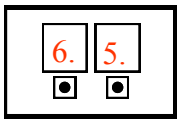
t2. Commonly closed circuit. Used by only 5% of quickshifters on the market, PC5.

Kill time adjustable version '1.8.'
(the last dot in the display **1.8.** means its possible to adjust kill time)

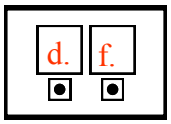
GP SG Item 410, 410HRC Moto3, 410KTM Moto3

To set a killtime follow this procedure (default at delivery is 65ms);

Hold left button and then press down both buttons and hold for 10 sec, t1 will show, then t2; continue to hold until 65 shows, release both buttons and toggle up or down to set a killtime, press both buttons until value stops flashing and display goes black, killtime is set. Killtime is adjustable 10-99ms,
Default for 1.8 version is 150ms and that should be used if the GP SG are used together with any other ECU's.



65ms, default setting.
Adjustable 10-99ms.

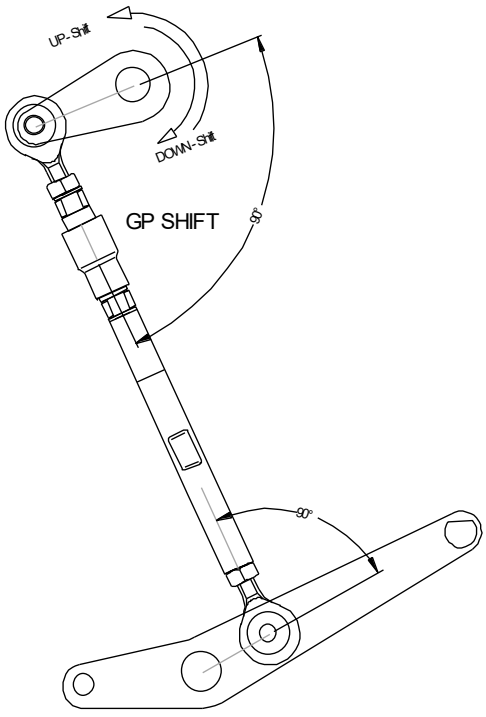


df. To restore std setting if unit is used together with any other ECU

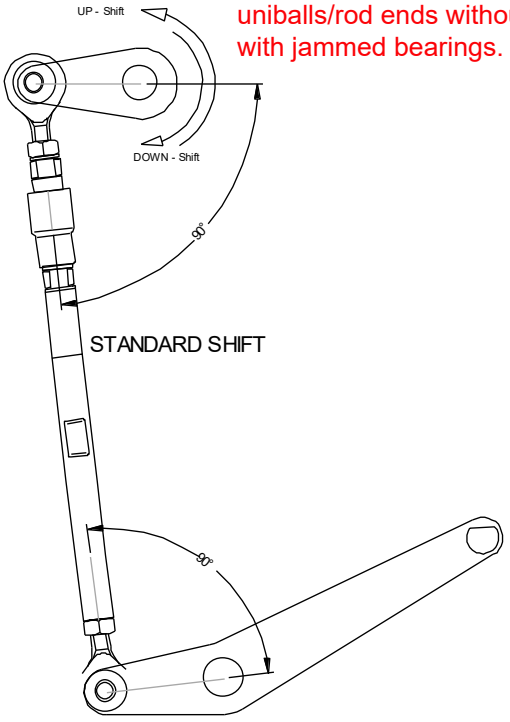
Upgrade: All GP SG produced with firmware 1.4 and later can be upgraded to 1.4. with killtime adjustability. Contact info@cordona.net and send your GP SG to Cordona.

Make sure the angle between the rod and the upper and lower levers are as close to 90 degrees as possible.

IMPORTANT; The rod shall be able to twist freely on the uniballs/rod ends.
!!! It very important to have fresh uniballs/rod ends without free play or with jammed bearings.



Upshift in PULL direction



Upshift in PUSH direction

All Cordona sensors can be configured for both PUSH and PULL direction for upshift, see **examples** above. To set direction of upshift see Initial Set Up page 2.

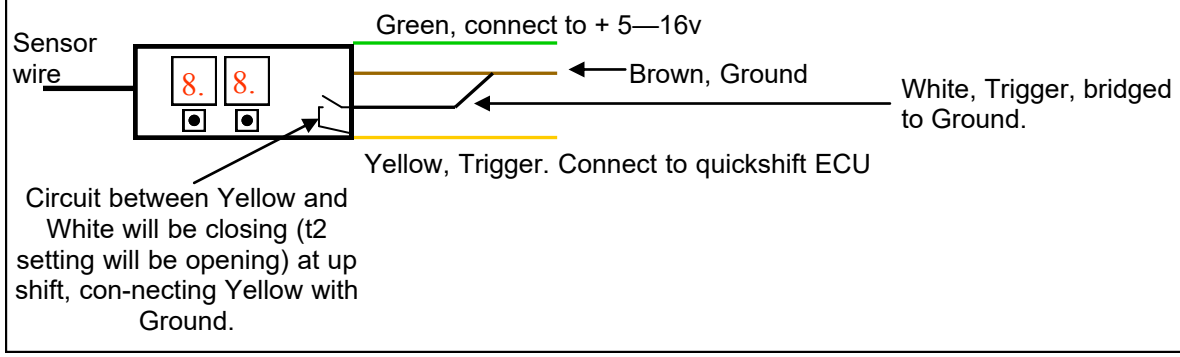
Wiring diagram and +12v/ground connections

Note !!! For GP SG switches supplied with seperate +12v and ground cables connect the red cable to ignition switched +12v on the bike, connect the black wire to battery ground (-).

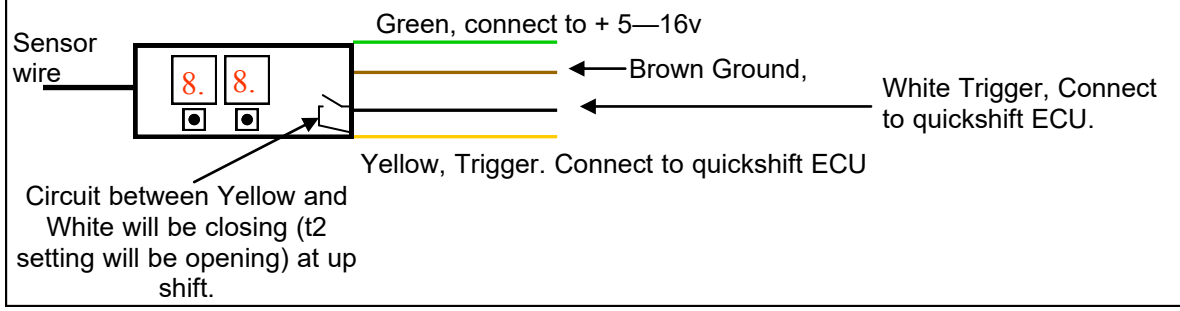
GP SG versions which need seperate +12v/ground from bike, Item 405PC3, 405PC5, 405YamaM, 405YamaFM, 406, 412

GP SG versions with plug and play cable to bike QS and power, Item 405YamaR7, 465, 465b

Wiring diagram GP SG for PQ8 and ECU's with QS signal to Ground



Wiring diagram GP SG with seperated loop, Item 405 all versions



FAQ:

- My bike is shifting fine on the stand and while going slow but at high rpm it sometimes won't up shift?

Increase preload, vibrations at high rpm triggers GP SG continuously so when you try to up shift it is already activated. Check the bike's rear sets for play, excessive play can cause the GP SG to trigger at high rpm.
If the sensor is located at the engine, move it to the rear sets, easy because the sensor has Magic Threads.
If the sensor is located at the rear sets, move it to the engine.
Also, try to rotate the sensor 90 degrees by loosening the nuts, sensor is activated by bending so rotating it 90 degrees will make it stiffer or weaker in the direction vibrations are bending it.

- The Panel is showing E.1 when I power up the GP SG?

The sensor is damaged and has a broken internal lead or the sensor wire is damaged. Replacement of sensor is needed, available as a spare part from a Cordona dealer, comes with a waterproof connector since the sensor wire needs to be cut at installation. Could also be a fault in sensor circuitry inside display unit.