

Reading time: 10min

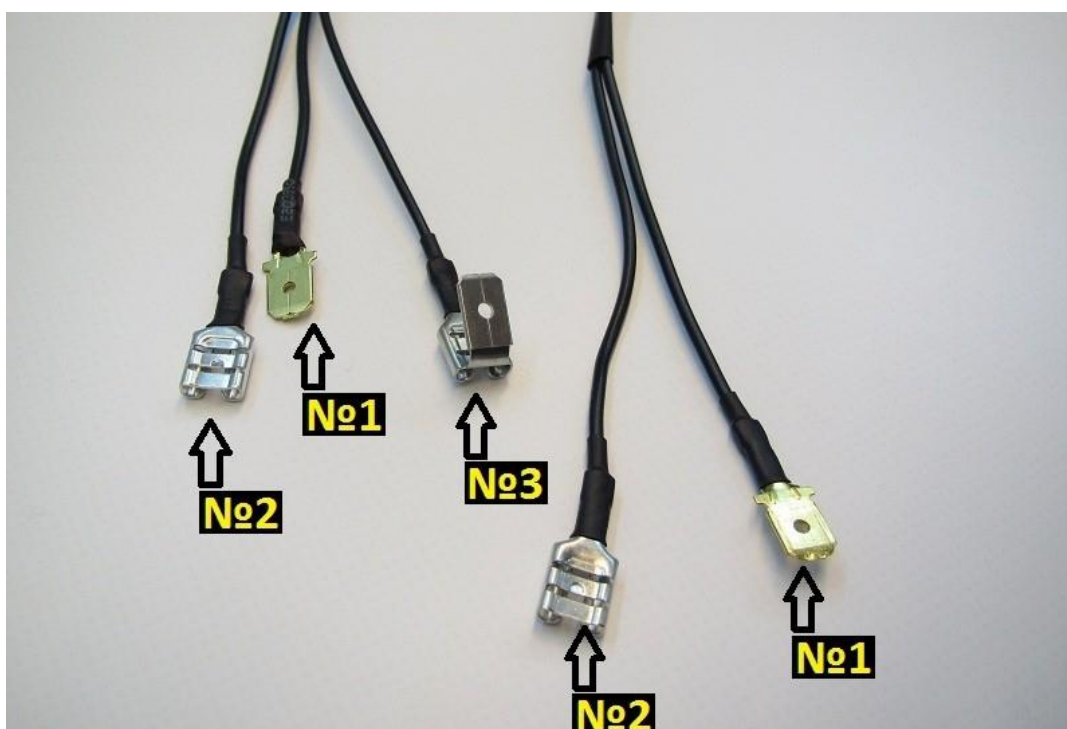
Full Race Unit installation manual part № “C-H65DC, C-H6DC, C-H1DC”

Please read carefully before attempting any use of this product!

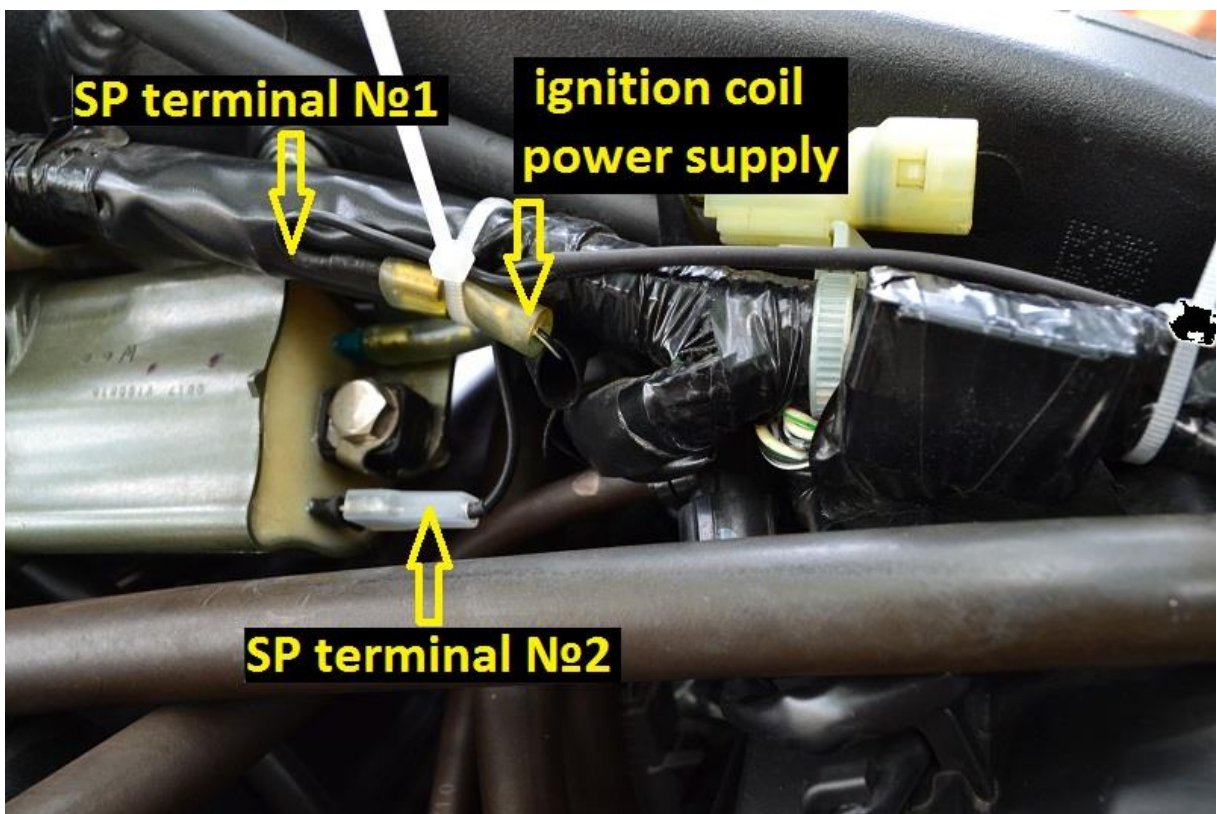
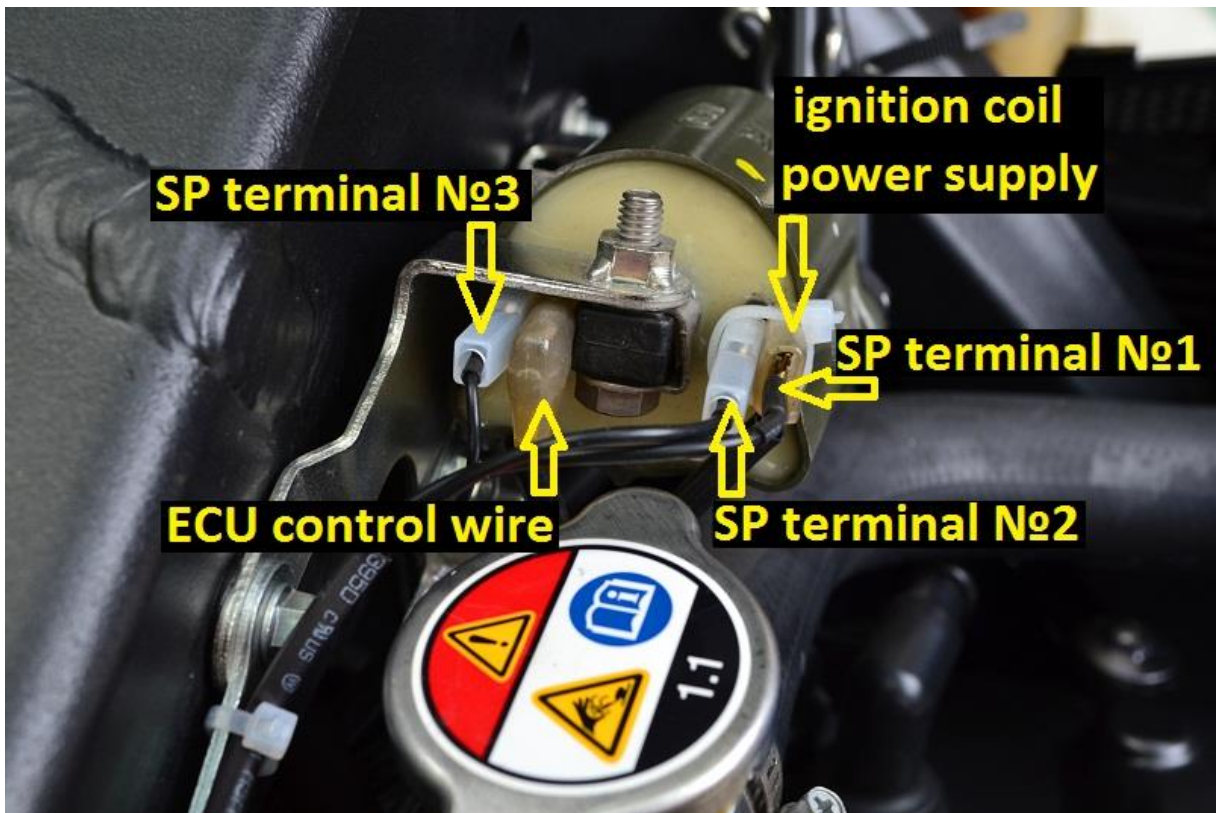
To install the Full Race Unit you will have to:

Gain access to the ignition coils (for best results refer to your motorcycle service manual). Find appropriate place for the control box and route the cables, they are high quality automotive class heat resistant cables but you still have to avoid moving parts as they might damage them, the best way is to follow other cables from the bike's harness, use cable ties to fasten them. Make sure the place for the control box **is away from heavy vibrations**, heat and it is not constantly exposed to rain and water.

Unplug the "POWER SUPPLY" (+) wires from both ignition coils - it is the wire with the same color on both coils! If you're not sure which one is, refer to your motorcycle service manual wiring diagram! (**do NOT improvise or you will damage the SYNCROtech control box permanently if wrong connection only by cracking the engine**). Plug the control box female №2 terminal to the coils and the male №1 terminal to the "POWER SUPPLY" wires. Disconnect the ECU signal wire from the coil (either one will work) and plug the control box №3 terminal to the coil then connect the ECU signal wire to the №3 terminal both are sharing same connection. Make sure all connections are well insulated and tight - if a connection is loose and not insulated and if due to vibrations touches the engine or chasis will damage a fuse and/or the control box, it is simple installation but care must be taken! Refer to the following picture for the control box terminal numbers regarding the dual external coils fitment:



The following photos are for illustrative purposes and your ignition coils may look different!



IMPORTANT NOTE: Make sure when plugging the connectors that you press them well enough to lock, as this will provide reliable electrical connection.

The control box requires negative ground connection to power up, connect the control box single black wire with ring terminal to the battery **NEGATIVE [-] lead!**

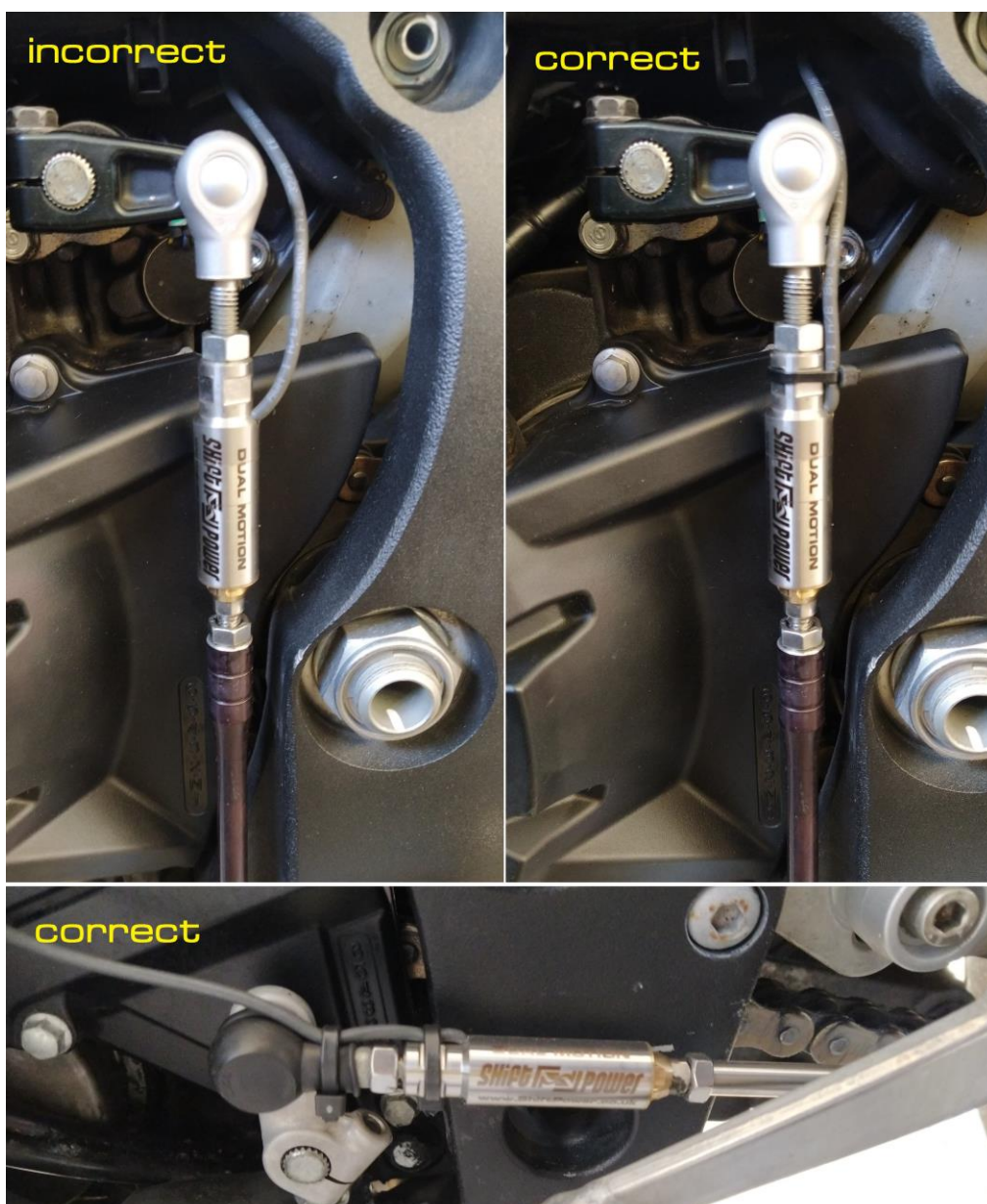
NOTE: You must never run or even crank the engine when the control box is connected to the ignition coils without the single black wire connected to the battery negative lead! Do NOT use bolts from the chassis or engine to connect the control box single black wire!

Remove the existing tie rod and install the shift sensor with the fitting rod(s) provided to its place. Route the wire to the control box and plug it in. When installing the sensor, make sure all counter nuts are locked and the sensor wire is not under tension when pressing the gear lever all the way up and down. The rod and sensor internal threads are made with DUAL THREADS (left and right hand at the same time) which makes fitting universal.

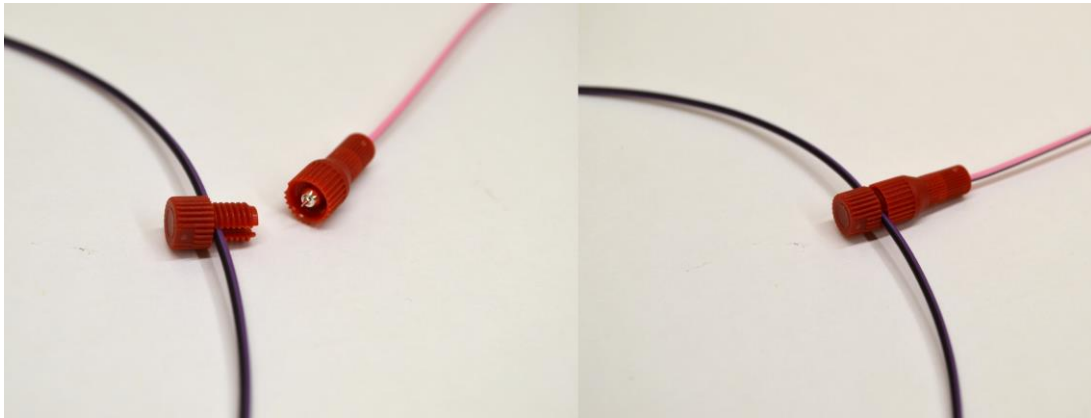
NOTE: Fasten the sensor cable using cable ties to the sensor body or tie rod to prevent it vibrating when bike is in motion, not doing so may result in long term damage to the cable core and shift sensor failure!

NOTE: Use the slotted end in top side and a 10mm open end wrench (spanner) to hold the sensor body when tightening counter locking nuts.

NOTE: The gearbox pivot arm must extend to 90 degrees with the shift rod in order to receive equal force in both directions, if not set correctly the gearbox may not react accordingly and miss gears when using the quickshifter!



Connect the control box male and female 3-way connectors with pink wire to the vehicle speed sensor. It is located to the upper crankcase. Depending on model the control box pink wire may be supplied with Posi-Tap connector which must be connected to the speed sensor signal refer to the installation manual or contact us for further advise!



Posi-Tap connector installation guide:

1. Do not strip run wire.
2. Unscrew the big end cap counter-clockwise
3. Insert the run wire in the big end cap slot.
4. Screw the big end cap to pierce and provide signal.

After this is done, turn the ignition key ON, make sure the engine kill switch is in RUN position and the gearbox is in neutral, at this time the control box must power up and enter normal operation displaying SP flashing.

Perform vehicle speed signal test before using or setting anything!

Speed signal test: Lift the rear wheel on a paddock stand, with everything connected power up the control box by turning the ignition key on (engine kill switch must be in RUN position, engine must not be running). Now rotate the rear wheel by hand, the control box display must flicker the lights to indicate it can read the vehicle speed signal.

BEFORE USING THE QUICKSHIFTER YOU MUST ENSURE THE CORRECT SENSOR MOTION FOR YOUR SHIFT SETUP IS SELECTED, PLEASE REFER TO THE FOLLOWING TABLE - OPTION SS

[Full Race Unit C-type control box setup video link](#)

- **To enter setting mode:** Press and hold LB and RB together then power up the control box, hold down the buttons for 3 seconds until the countdown timer elapses.
- NOTE:** Depending on model to power up the control box you have to turn the ignition key on, engine kill switch in RUN position, gear in neutral if the control box lights up only while the fuel pump is priming you need to start the engine.
- **To cycle through the main parameters press LB**
- **To enter a particular parameter press RB**
- **To exit one level up in the menu press and hold LB for 3 seconds.**
- **To exit the setting mode power down the control.**

The following is a menu table for adjusting the control box parameters

Parameter	Description	Value		
St	Adjust the engine interrupt time for shifting gears UP(1-2-3-4-5-6)	50ms - 95ms		
SS	Sets the shift sensor motion for shifting gears UP(1-2-3-4-5-6)	PH = PUSH PL = PULL		
Ad	Sets the Launch Control and Pit Limiter RPM limits	When LC displays engage on 1st gear accelerate the engine to the desired RPM and press RB once to set the limit LC flashes 5 times to indicate settings are accepted	When PL displays engage on 1st gear accelerate the engine to the desired speed and press RB once to set the limit PL flashes 5 times to indicate settings are accepted	
US	Controlling the ultra-smooth shift feature for shifting gears UP(1-2-3-4-5-6)	U1 - ultra smooth feature is enabled	U0 - ultra smooth feature is disabled	
Ar	Sets the Launch Control RPM range when reaching the pre-set RPM limit	r1 2 combustion cycles	r2 4 combustion cycles	r3 6 combustion cycles
SC	Shift sensor sensitivity control adjustable in 5 RPM ranges and 3 levels of force	1 = 3000 - 5000 RPM 2 = 5000 - 7000 RPM 3 = 7000 - 9000 RPM 4 = 9000 - 11000 RPM 5 = above 11000 RPM		A = low force b = medium force c = high force

The following is shift sensor calibration procedure. Perform only if you are replacing the shift sensor or you have reset the control box to factory settings.

1. Unplug the shift sensor from the control box.
2. Power up the control box by turning the ignition key on and engine kill switch in RUN position.
3. Plug in the shift sensor to the control box.
4. Ph displays now compress the shift sensor using the shift lever all the way until solid at once without backing off! Release the shift lever to normal position and the control box displays a number from 48 to 55 is normal operating value if different repeat the procedure from the beginning.
5. Pl displays now extent the shift sensor using the shift lever all the way until solid at once without backing off! Release the shift lever to normal position and the control box displays a number from 14 to 18 is normal operating value if different repeat the procedure from the beginning.

NOTE the above values are correct for DMU sensor if the sensor you're calibrating has no part number means its DMS and operating values are PH(55-59)/PL(34-38)

Activating the Launch Control:

Before operating the launch control you have to set the RPM limit from the setting menu parameter Ad/LC. When new or after reset the launch control is deactivated!

How to activate:

- The vehicle speed must be 0km (rear wheel standing still).
- The engine RPM must drop at idle for at least 1,5seconds.
- The engine RPM must raise to the pre-set Launch Control RPM limit (twist the throttle here).

What is the (Ultra Smooth) shift feature:

This option will restore the power on the next gear when using the quickshifter by firing sequential cylinders allowing smooth transition between gears, particularly suitable for cruise and city riding.

What is the (Ar) launch control option:

This option defines the active range of the launch control RPM limit, for example if the launch control is set to 7000RPM this option will define how many combustion cycles are allowed when the limit is reached and therefore allowing smaller or greater limit to which the engine RPM are held by the launch control.

What is the (SC) shift sensor sensitivity control:

This option allows you to adjust the force required by the shift sensor to initiate a shift depending on engine RPM. You can adjust 3-levels of force represented by letters (A = Low, b = Med, c = High) in 5 RPM ranges represented by numbers: 1 = (3k to 5k); 2 = (5k to 7k); 3 = (7k to 9k); 4 = (9k to 11k); 5 = (11k to red line). This option has been pre-set from factory we recommend you to test ride before changing the parameters.

Force reset of the control box

With everything connected turn the ignition key on with the engine kill switch in RUN position, side-stand lifted, engine must not be running then press and hold the shift lever in the direction of Up-shifting all the way in – at this point the control box will display a counting timer, wait until “r t” start flashing. Module is now reset to the factory pre-set values, refer to the above table.

Tips on adjusting your Quickshifter!

The control box arrives with best overall setting to your motorcycle make and model. We strongly recommend you to test ride it before changing the St settings. Use the following as a general guide when adjusting your Quickshifter:

If when using the Quickshifter the gearbox seems to push back the shift lever, the shift feels rough and you have experienced missed gears - this means that the gearbox needs more time to react – increase the St shift time.

If when using the Quickshifter the motorcycle front dives for too long and the shift seems slow - this means that you have to lower the shift time – decrease the St shift time. Best results for most motorcycles are achieved with the following time settings - (60ms-70ms).

The Quickshifter has a threshold RPM which means that the engine speed must exceed the minimum threshold in order to activate the Quickshifter function. The factory setting are over 3000RPM and this is not adjustable.

If for some reason you're experiencing difficulties adjusting your Shift Power product, you think it is not functioning as expected or you would like to share your opinion please feel free to contact us to support you with professional help.

This product is covered by one year warranty against malfunctions from the original date of purchase under the following conditions – [link click here.](#)

Warranty disclaimer:

Shift Power Ltd shall not under any circumstances, be liable for any special, incidental or consequential damaged including, person, party or property, but not limited to, damage loss of cost of purchased or replacement goods or service, claims of customers of the purchaser, which may arise and/or result from sale or use of these parts. Installation of these parts could adversely affect the engine manufacturer warranty coverage.

Thank you for choosing the Full Race Unit system!