



CORDONA
PRECISION TECHNOLOGY

Precision Quickshifter PQ8

MotoGP Technology
Moto3 approved by IRTA
Proven Championship Winner
Computerized Precision Technology

Proudly Made in Sweden

www.cordona.net

PQ-8 Features

- * The **latest GP technology built in and fully computerized, 20MHz CPU**. Programming done with 2 buttons.
- * **Compu Shift**, calculates a perfect kill time for each up shift according to engine conditions, acceleration, load and rpm from a **selection of 500 different kill times**. Adjustable between 40-80ms.
- * **Makes the ECU believe the engine is still running at up shift**, allowing for a very smooth and stable up shift without any fault messages or leaned or enriched fuelling.
- * Has **“Smooth Shift”** built in to ease the shock loads on the gear box and chain and to lessen loss of traction at up shift, just like the Moto GP shifters. It kills all cylinders simultaneously at up shift but bring them back on in a computer controlled sequence, in conjunction with Compu Shift.
- * Comes with **plug and play connectors** for Denso and Mitsubishi coils used on most **Japanese sportbikes, Triumph and KTM (KTM Superduke R 2008 uses Beru coils, please use Ducati 749-1198 harness). Ducati 748-998, 749-1198 , Aprilia RSV 4, MV Agusta 2 coils and 4 coils** harness available from us or our dealers. For other coils the installation is not plug and play, still an easy straight fwd. installation though.
- * **Automatic rpm controlled ON/OFF, fully adjustable**, to prevent the engine from stopping when put in neutral from 1st gear while at idle.
- * **Will pick +12v from a coil** via the red wire going straight to the PQ8 CPU on bikes with stick coils, making for an easy installation, no need to install a 12v wire on bikes with stick coils.
- * **Waterproof design**, the circuit board is **encased in glue**, and has an aviation grade 26 pin connector.
- * **Aural horn** for test and start up acknowledgement if hidden behind fairings, **very useful for set up**.
- * **Shift Light** circuitry built in, with shift soon functions; LED will come on for 1000rpm before up shift rpm and then flash in sequence with the rpm. RPM is set with 3 digits in steps of 100rpm. LED assembly sold separately.
- * **Auto Shift, for drag racing only**, can be selected to activate the shifter automatically at an adjustable rpm. The rider just has to keep the shifter pedal preloaded between up shifts. Useful for drag racers going below the break out time, just reduce the up shift RPM to go slightly slower next run.
- * **Power Save**, following a 60 sec period where no inputs have been made the PQ8 display goes into Power Save mode, a blinking dot only to show the PQ8 is alive. Very useful if a battery pack is used to power the shifter. The display uses the majority of the PQ8’s power consumption.

Grey wire looped at the wiring harness opening is an AUX Tach Sense Line. If the PQ8 is unable to detect RPM through the green wire coil connector, connect gray wire to tach or generator pick up coil wire and select **In2** on menu 6. Just pull the wire lightly to find the end. The wire can be pulled out through the harness, locate gray wire at the PQ8 26 pos connector and pull gently at it, helpful if PQ8 is mounted behind gauges. A Bike tach normally has 3 wires, +12v, Ground and Tach Line; Tach Line goes straight from the bike ECU to Tach. If PQ8 still is unable to detect RPM , Compu Shift is not available, but PQ8 will function just fine, Smooth shift is still working.

Installation

1. Remove fuel tank and air box (drop radiator on Yamaha R1 with 3 bolts) if needed to access coils. Stick coils can be of 2 different brands, Denso or Mitsubishi.
2. Determine the common colour wire to all coils. Both examples below show a Red common colour wire.
3. Look from the harness at a coil; if the common colour wire is on the right hand side, it is a standard ignition system, see below. If the common colour wire is on the left hand side, it is a non standard ignition system and crossed adapters are needed, see below.

Ignition Systems

Most bikes have 2 wires to each coil. **One wire is +12v feeder coming from the battery or other 12v source. The other wire is a pulse wire** from the bike ECU.

The wire fanning out with a **common colour for all coils is the +12v wire**, it will normally go straight from the battery via the fuel pump to coils.

The wires that are in **different colour for each coil are the pulse wires; they normally go straight from the ECU to coil, please see below.**

Some bikes have 3 wires to each coil, hence late Ducatis; in case of 3 wires there is one **12v wire in a common colour** for all coils, **one ground/earth wire in a common colour** for all coils, and a **pulse wire, different colour** for each coil.

3.1. **Ducati and other CDI ignitions:** Cut off the PQ8 plug and play connectors on nr 1 (green) and nr 4 (yellow). Locate pulse wire to a coil, cut it and install the supplied connectors. **Or use our Ducati harness, can be ordered from www.cordona.net or from our dealers.**

Install supplied connectors on the PQ8 wires; make sure the **striped wire will mate with the bike ECU wire**, see below.

Make sure the **solid coloured PQ8 wire will mate with the Coil wire**. Repeat on the other cylinders.

Connect the red wire to ignition switch controlled +12v, a tail light supply wire is preferred since it is powered continuously. Connect black wire to ground, frame or engine.

Other twins or 3 cyl eng, just leave the not used connectors unconnected.

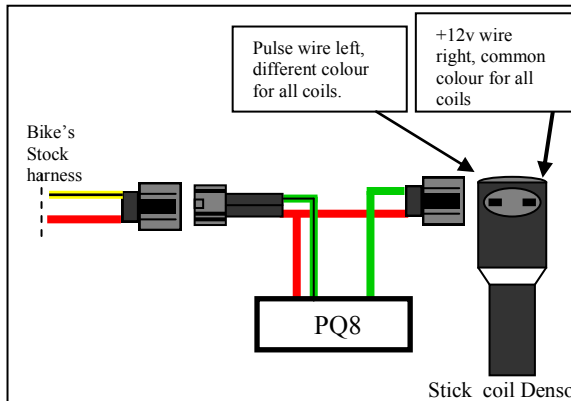
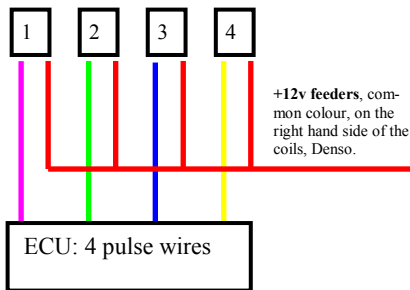
Aprilia and engines with dual coils per cylinder: Trace pulse wires from a cylinder until they become one single wire and cut it. Or instead of tracing, cut both wires, twist together and connect to PQ8 referring to the Ducati instr. above. Order our **Twin Harness** to ease installation

KTM Twins: Use green and yellow plug and play coil connectors on std harness. Remove or leave Blue and Brown wires unused.

Standard ignition system, NO crossed adapters needed on PQ8 green red wire coil connectors

The PQ8 harness can be installed with shortest wires either at 1st or 4th coil.

4 coils

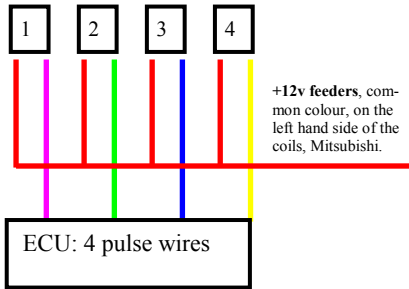


Suzuki GSXR, Hayabusa.
Honda CBR.
KTM, Superduke -07, RC8.
(Superduke R 2008 uses Duc 749-1198 harness).
RC-8 2011 and newer with 4 coils, connect green and blue coil wire pair to one cyl and yellow and brown to the other cyl.

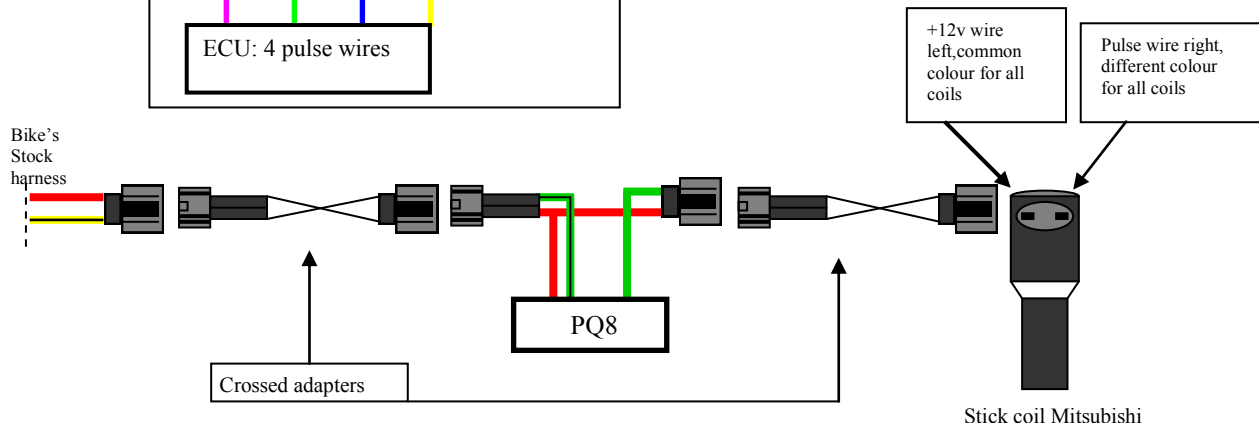
Non standard ignition system, crossed adapters needed on PQ8 green red wire coil connectors

The PQ8 harness can be installed with shortest wires either at 1st or 4th coil.

4 coils



Yamaha R6, R1. Kawasaki ZX.
Triumph 675, use 3 coil wires, make sure green is used.



Always install 2 X-adapters, never just 1

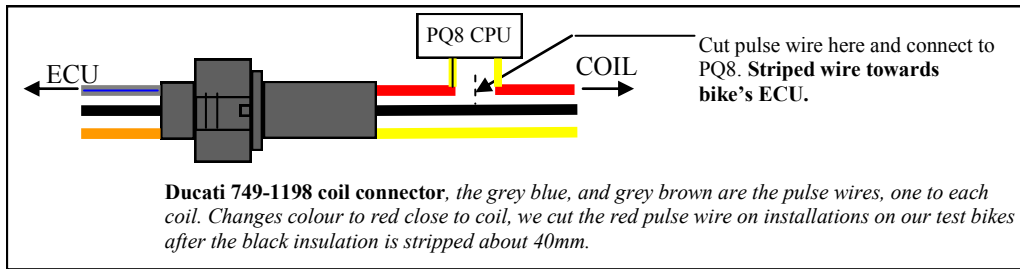
X-adapter goes here, on green/black, orange, red

X-adapter goes here, on green orange, connector.

Single engs with neg pulse wire. Combine both Green and Yellow wires, cut, twist together striped Green and Striped Yellow. Do the same with solid Green and Yellow and treat as one wire and connect as above.

Single engs with pos pulse wire. Combine Blue and Brown wires, cut, twist together striped blue with striped brown. Do the same with solid Blue and Brown. Connect Grey wire to tachline, see bottom frame on page 2. If PQ8 can not read the rpm, Compu Shift will not be available.

- Route the harness forward following the frame, steering head, and locate CPU behind the gauges on a fairing bracket or elsewhere, with the



included Velcro and zip ties (not included); clean surface for Velcro with alcohol and warm it with a heat gun. The CPU can be located virtually anywhere but the most suitable location is behind the gauges. The CPU should be protected from direct spray of water and vibrations. **Warning: make sure harness does not interfere with any controls, or wheels, suspension, other equipment, or loss of control could result.**

- Connect ground wire, **Black**, to battery, frame or engine, wire can be shortened. **Do not use fairing brackets for ground.**
- Turn ignition on;** the shifter should light up, beep, and show 000, or version. If the PQ8 does not light up please install x-adapters on the green wire coil connectors with a red wire going straight to PQ8. The beep will let you know that the PQ8 is ON and supplied with power in case it is hidden behind fairings.
- Refit fuel tank, air box.
- Start the engine. The PQ8 should show rpm with 3 digits.
If the PQ8 doesn't light up and show rpm and the bike runs on 3 cylinders (or one cyl less than before), install crossed adapters on red, green wire coil connectors. See page 2, bottom figure.
- Stop the engine. **Connect Strain Gauge GP Switch to black, pink and red 3 way connector.** GP SG Green to PQ8 Red. GP SG Brown/White to PQ8 black. GP SG Yellow to PQ8 Pink.
- Start the engine, make sure the clutch lever is pulled all the way in, aim for around 3000rpm. Simulate up shift by moving the shifter pedal, the engine should die briefly and then come back alive again, the tachometer should drop in between 500-1500rpm. We normally do this in 6th gear to avoid nasty noise from the gear box while shifting up. In 6th the GP can be activated without shifting to a higher gear. **Warning: be very careful, make sure the bike is in neutral, use a zip tie around the clutch lever and handle bar to make sure clutch lever is pulled all the way in and you don't release it by mistake, your bike will then take off, out of control, creating a very hazardous situation.**
- Stop the engine.
- Set on off rpm. "On3", we suggest 3000rpm for racing. 5000rpm for street riding.
- Set Shift light rpm to enable Compu Shift "- - -" ex. "133" is 13300rpm. The PQ8 will use the shift light setting to calculate the perfect kill time for engine condition.
- Test ride; start slow and shift at low rpm, above 3000rpm though, work your way up through the rev range. Kill time default setting is 80 ms, our test bikes are set up around 65ms.**

Programming:

- Toggle to desired menu, **6 in total with adjustable values**, with top or bottom button. There will be 7 displays since the default display is RPM.
- At desired menu; Press both buttons simultaneously until value starts to blink
- Use either top or bottom button to change value.
- Press both buttons simultaneously to confirm; wait for beep-beep confirmation, value stops blinking
- Wait 4 sec for default menu to show or toggle to next menu.

Default values, factory settings:

- Display default**, always showing if the panel is left for more than 4 sec: **0.0, or actual rpm if engine is running**, (1-20000)
- On/off**, lowest rpm for quickshift: **On 3** rpm (adjustable 0-9000)
- Shiftlight**: **S0.0** rpm (adjustable 0-20000rpm). Note: **the S looks like a five.**
- Killtime** how long ignition will be interrupted at max rpm, in millisecc : **t80** ms (adjustable 40-80)
- 4stroke**: **St4** (adjustable St4, St3, St2, St1). If RPM is reading too high, use lower St value
- Autoshift**: **Aof** (adjustable Aon or Aof)
- RPM sensing input**: **In1** (In1 rpm through green wire pair to coil, or In2, rpm through grey aux wire, looped in the harness).

Warning: Be careful not to set too short of a kill time as it might damage the gear box to have ignition switched back on without the gears being properly engaged.

FAQ: My bike shifts fine on the stand and when going slow but when going down the track nothing happens, I can actually hear the shifter go “beep” continuously or intermittently even when I don’t touch the shift lever.?

A: Vibrations are triggering the GP Switch continuously so the built in “SCD” Single Cut Device never senses 0.4 sec in between activations so the PQ8 will not kill the engine. Tighten the correct preload screw on GP Switch or increase KG on GP SG to rectify the problem.

Q: The engine is not being killed when I up shift but I can hear the beep at each up shift, and the PQ8 is reading rpm properly.

A: Check that **Shiftlight** rpm is not set below **On rpm**. Shiftlight should always be at max rpm for Compu Shift to work, or at 0.0 for a flat kill time for all rpm’s.

Q: I heard the beep when I made the installation but now when I move the shift lever there is nothing, and the bike won’t shift.

A: Check that Autoshift is not selected ON. Autoshift inhibits the GP Switch.

Q: The engine is shifting all over, and I don’t even touch the shift lever.

A: Change ground/earth point, if the ground connection is intermittent the PQ8 will kill the engine every time it comes back alive. **Do not use fairing brackets for Ground Ringlet**, fairing brackets flex during riding and are subject to being bent in case of even small mishaps. **Use only engine, frame or battery for Ground Ringlet**

Please be careful and always wear a helmet and full protection motorcycle gear while riding your motorcycle.

The Cordona PQ8 should be used on a closed circuit only. The use of this product is at the sole discretion of the user. The manufacturer of this product is not liable for any kind of damage or injury caused to the operator, vehicle, or to third party. To put it simple, do not come to us if you bend yourself, third party, your vehicle or anything else.

Good luck, see you at the race track.

