

SUPPLEMENTARY MANUAL

for iQSE-2 + QSH-CKP

This is a guide to getting a HealTech quickshifter to work properly on a carbureted GSXR SRAD. Though being a very straightforward install on the later Gixxers with fuel injection, getting the quickshifter to work properly and reliably on the 1996 GSXR 600 required a little bit of tinkering, but yielded excellent results in the end. Note: this bike had the 32900-34E20 ECU, and these instructions are specific to that. This procedure may work with other ECU's but that will be up to you to try.

Firstly, some shops will try to sell you a Healtech QSE-1 and the QSH-P2A - this is NOT the setup you want for this bike. What you want is the **iQSE-2 and the QSH-CKP**. I'm going to interject a couple disclaimers here. I'm sure this isn't the only way to do this, I cannot even guarantee it's the best, but this way works very well and does eliminate the earlier issues I had whilst trying to get a couple different kits to work properly and reliably with the original ECU.

1st: Mounting the strain gauge

I'd initially put the strain gauge inline in the shift linkage rod of the Gillies Tooling rear sets I'm using, but as I worked through diagnosing issues, I've ended up having much more consistent performance from the gauge by having it **mounted under the bolt which clamps the shift link in place on the transmission shaft**. Put the washers in facing the correct way: (0) , and tighten the bolt to **5Nm** - no more, no less. Re-check the tightness of the bolt once in a while.

2nd: Mounting the iQSE module

The module is well built, but like anything else electronic it will benefit from not being exposed to any unnecessary heat or electrical interference. Some crude testing seems to yield that the original ECU on the carbureted 600 GSXR SRAD is very noisy electrically and makes a fair bit of interference. I had inconsistent results with the module too close to the ECU and finally solved many issues by **mounting it under the rear seat about 200mm (8 inches) from the rear of the ECU**. You do NOT want to mount these units under the seat or under the tank. The wiring for the module too, I've **run down the right hand side of the bike** (as you're sitting on it, running under the sub frame rail on the 'rear' side of the ECU (opposite side from the electrical connections). This too seemed to help consistency suggesting to me there's a fair bit of interference being generated by the ECU on the connection side. I **earthed the module using an M6 bolt to one of the pre-tapped holes on the subframe, and tapped into a switched lead** - don't connect the positive wire to the + side of the batt, this does need to be switched from the ignition.

3rd Connecting to the CPS wiring.

The two green wires will need to be connected to the two leads running to the crank position sensor. You will want to run the wiring from the iQSE-2 down the right hand side of the bike, past the battery, then loop back over to the left side to connect them. This keeps the wires routed as far as possible from the connection side of the ECU where I had much issue with interference. These wires will attach to the main harness on the left side of the bike (as you're sitting on it) just about at the rear most edge of the fuel tank. There's a plug there (which is also worth checking as they seem to corrode a bit).

You should now have:

- The strain gauge in place
- The module mounted
- Wired to a switched power lead
- Earthed appropriately
- The two green leads spliced into the crank position sensor wiring.

Put the bike into run position - but don't start it yet. With the iQSE app installed in your phone, you should be able to connect via Bluetooth, and **run through the initial setup mechanism (Setup Wizard) as provided with the app.**

There are a couple of changes you'll want to make to the default settings of the app:

- Set the **Pulses per Rev setting to '4'** for accurate RPM reading.
- Set the **cut-off times to manual and specify 40ms (*)** for all the RPM's below 9500, you can try setting to 35ms above 9500 or defaulting to 40ms all the way through the RPM range - which is what ultimately worked best for me.
- Cut-off delay you can leave at 15ms.
- You'll also want to set the RPM thresholds to **First RPM: 3000, and Last RPM: 15000.**

***: This particular ECU seems to yield about twice the specified cutout time as an actual cutout time, so this 40ms figure is actually closer to 70-80ms in practice.**

After a few rounds of setup/testing/setup/testing, a Sensor Threshold of '70%' proved to offer the most reliable action, but it may be different for you.

If you have a rear paddock stand strong enough to support your bike with you on it. Start the bike, warm it up, and run through the gears a few times, shifting using the lever only at 4000-4500, you should have an instantaneous, seamless shift. Work up and down the gears a few times (be sure to use the clutch for downshifting as being carbed there's no throttle blipper and you don't want to beat the transmission to pieces.

If the behavior on the stand is good, take it out for a spin on the road. The shifts should feel very crisp and instantaneous. **If there's a slight delay and a clunk, shorten the shift cut out time by 5ms.** Having said that, if you're using my settings above you're already near the very quick end of the cutout times and there's not much adjustment left.

You do NOT want to use the Adaptive shifting option on this bike as it'll yield very inconsistent shifting results and you'll probably want to stick very close to the above settings to get the most reliable, and best performance from your quick shifter installation.

Enjoy and ride safe.

Special thanks to Mark G. and Luke M. for these instructions.