Fitting Guide for

Bottom Bracket Torque Sensing (BBTS) kit

Important: For your own safety you must read this manual before attempting to fit this kit. You must also ensure that you fit the kit in strict accordance with the instructions in this manual.

Tel: 01702 684444 — E-mail: support@wooshbikes.co.uk

Before you start the installation of your kit, please read the following:

This kit is intended to be fitted by someone who is competent and experienced at fitting electric kits to bikes. If you are not experienced and/or lack the necessary tools to complete any of the procedures in this manual, you should seek the advice of a professional who can fit the kit for you. If necessary, call us on 01702 684444 or email us at support@wooshbikes.co.uk and we will try and put you in touch with someone in your area that has the necessary expertise to properly fit your kit. You will of course need to pay for the technician to install your kit, these costs are not covered by Woosh Bikes.

Warranty Terms:

If your kit is fitted by a professional installer, it will be covered by our standard one year warranty, which means that in the event of a failure, you would first need to have the person that installed your kit confirm the issue and likely cause, then you (or the installer) would need to contact us and provide us with the details of the fault. If the issue cannot be resolved over the phone or via email, then you would need to return the faulty part to us at your expense. We will then repair or replace the faulty part and send it back to you at our expense (during the warranty period). If the kit was not fitted by a professional and/or the failure that has occurred is due to poor/incorrect installation, or the kit has been used improperly, the warranty will be voided.

This manual assumes that that the installer has reasonable bike knowledge, and so does not include detailed instructions on how to remove your existing bottom bracket for example.

What's in the Box

Ensure that you have all the parts listed/shown below before going any further, if there are any missing parts, contact us on 01702 684444 ext 2

The motor kit comprises of the torque-sensing bottom bracket, LCD, controller, cranks/crank-bolts, and a 44t or 48t chainring.

This kit is designed to be used with a 68mm bottom bracket shell.

The kit will also include a motor wheel, battery, and a saddle-bag, not shown.

To install the torque-sensor you will need both of the bottom bracket tools shown below (or equivalents of them).

BB Tool

16 Notch BB tool

You will also need:

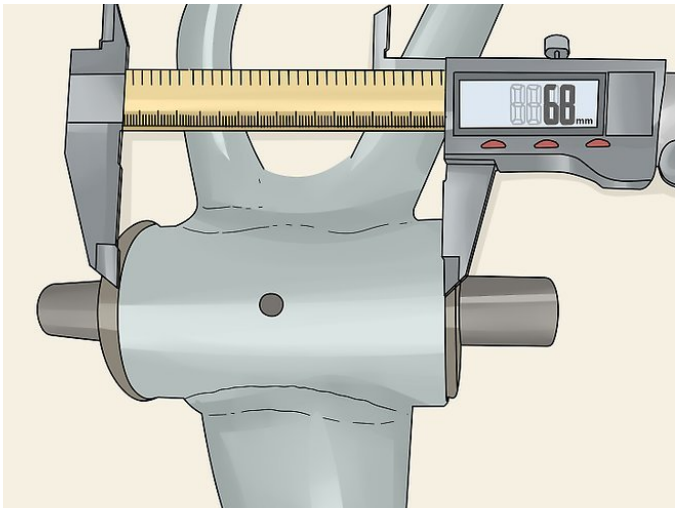
A set of Allen keys for the crank bolts (10mm), and display bolts (3mm).

Side cutters to snip cable-ties.

Be sure to watch the video on our website before you install the kit - wooshbikes.co.uk/?tskit

Step 1.

Check that your bottom bracket shell is 68mm, and then remove the existing bottom bracket.

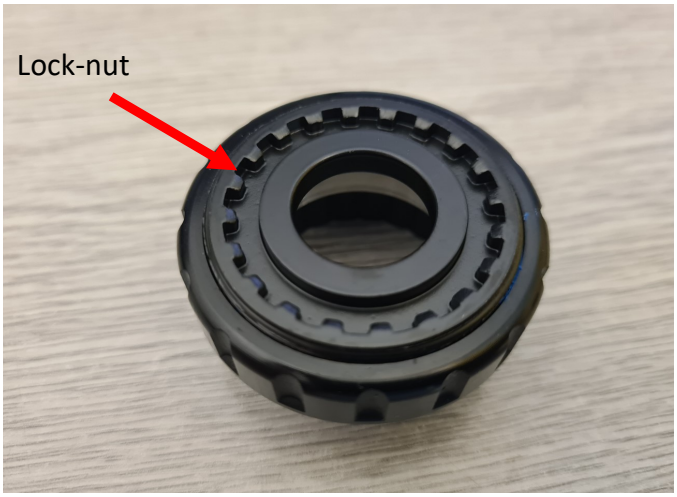


Step 2.

Drill a 10mm hole in the underside of the BB shell. This is for the cable from the torque sensor to pass through. Ensure that the hole is drilled towards the middle of the shell and away from the threads either side of the shell. If there is a cable guide, you may need to move it over slightly. Be sure to clean out the BB shell and remove any metal shavings.

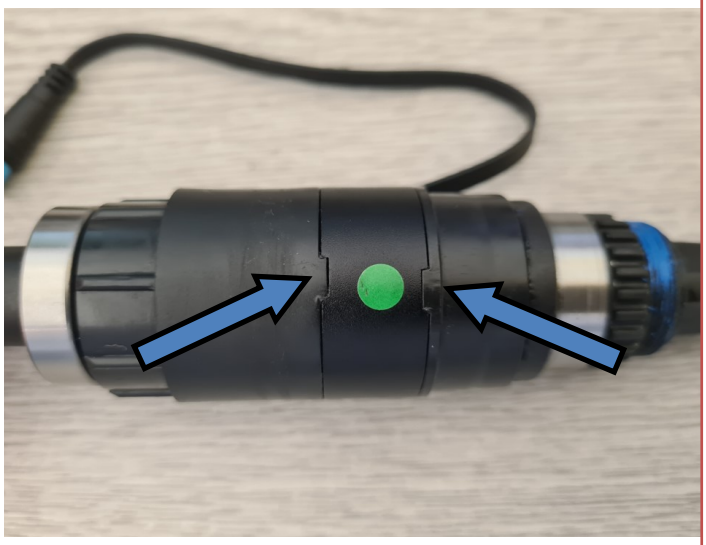
Step 3.

Remove the lock-nut from the **left/non-drive side** cup before fitting it (turn clockwise to loosen). With the lock nut removed, fit the left/non-drive side cup, and fully tighten it. The left cup has the internal splines. For a video showing the installation process, see wooshbikes.co.uk/?tskit



Step 4.

Check that the all the remaining parts that make up the torque-sensor kit are present: the torque-sensor BB/sensor body, the drive-side cup, the lockring for the chainring, and rubber grommet.



Check that the areas indicated above-right are correctly interlocked.

Feed the cable through the BB shell from the drive-side, and then out through the hole that was drilled earlier.

Slide the sensor body in to the shell, ensuring that the cable doesn't get doesn't get caught or twisted. The sensor, when fully home will mesh with the splines on the cup, locking it in place and preventing the sensor-body from rotating. Gently tug the cable through the hole as the sensor is slid into place to prevent it getting caught.

WARNING: If you wish to take the BB/sensor out at any point after it's been fitted, perhaps to move the kit to another bike, **you must remove the left/non drive side cup LAST, and after the sensor has been removed.** If you try to remove this cup with the sensor in place, the cable will be sheared off.

Step 5.

Fit the grommet around the cable, and then slide the grommet down the cable and into the hole in frame. This is to protect the cable from the sharp edges, and also to protect the area from the elements.

Step 6.

Fit the right/drive-side cup, and then on the **left-side**, fit the lock-nut that was removed from the cup earlier. This tightens anti-clockwise, and should only be lightly tightened.

Next, fit the chainring and then fit the lock-nut to secure it. This lock-nut also tightens counter-clockwise, do not overtighten it.

After fitting the drive-side cup, fit the lock-ring back into the LEFT cup—finger-tight only.

Step 7.

Fit the left and right cranks, the right crank is clearly marked with an ‘R’, the left crank has no markings. The installation of the “torque-sensing” part of the kit is now complete, and you can fit your existing pedals.

The controller is secured in a saddle-bag (supplied), and any excess cable can be tucked in here to tidy things up. There are more details about the saddle-bag and the various connections to the controller later in the manual.

Downtube Battery Installation

A space of approximately 38cm by 10cm is required for the battery, this includes the extra couple of cm that the battery needs to be slid up when removing it from the bike/cradle. The battery is actually 36cm.

There are few slightly different types of **downtube** battery that we use. They are basically all fitted in a similar way, but the differences between them will be covered over the next couple of pages.

The downtube battery-cradles have three mounting points, and due to the weight of the batteries, ideally all three mounting points should be used.

The downtube batteries are designed to be mounted to the existing bottle bosses on the downtube, but normally there is only two of them, and so we supply two riv-nuts with the kits so that you can provide the extra fixing(s). Sometimes one of the existing bottle bosses will not in a suitable position, meaning it may be necessary to fit both of the supplied riv-nuts. **If you would prefer not to drill holes,** an adjustable adapter can be purchased which will secure to the two existing bosses, and will provide the necessary mounting points for the battery cradle.

The adaptor is bolted to the frame at the desired position on the downtube (it comes with the bolts), and then the battery cradle is attached to the adapter. If you don't get the position quite right the first time, you can simply loosen the bolts and slide the adaptor along the downtube in either direction as required.

This adaptor is available on www.amazon.co.uk—search for "B08ZXQR58C" Eventually this product may be discontinued or not found using the above search term. If this is the case, contact us and we will find a suitable alternative for you.

If you plan to use the riv-nuts, when you have marked out where you are going to drill the holes, but before you have actually drilled them, place the battery on the cradle, and hold it in position, and make sure that the bottom end of the battery will be clear of the seat-tube, and that the battery is not obstructing anything.

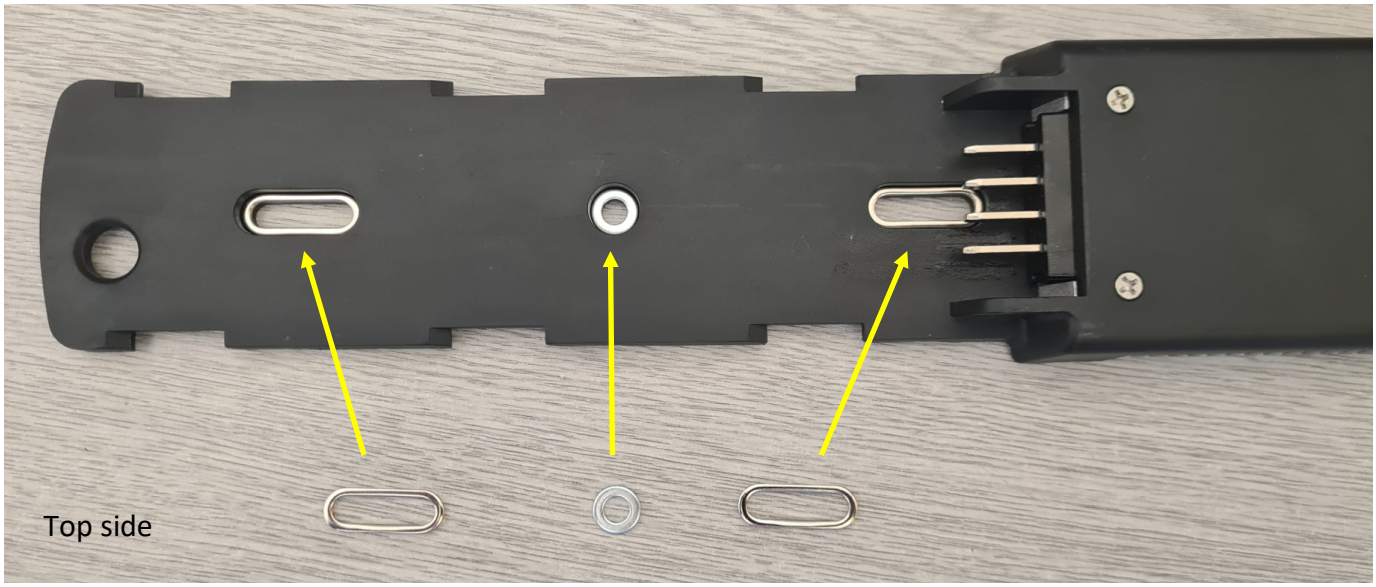
You will need to use a 7mm drill-bit.

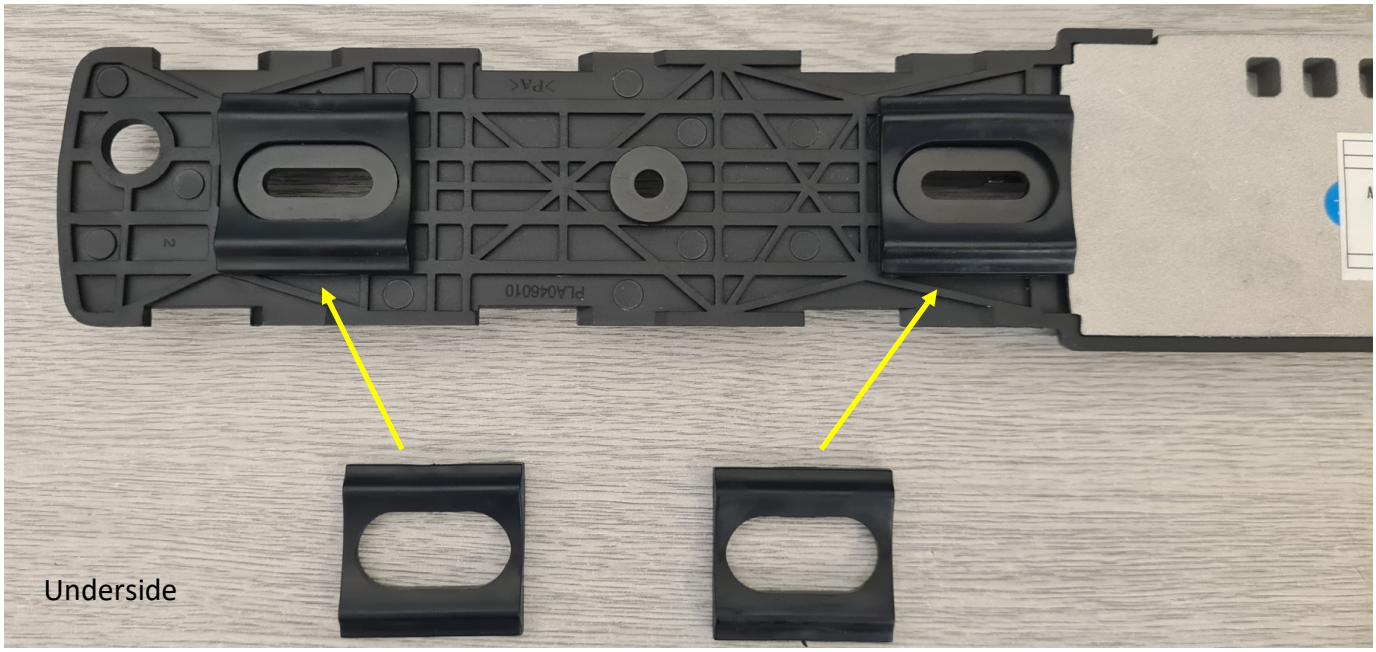
Once you have the cradle installed, be sure to remove the battery from the cradle before continuing with the rest of the installation.

If you inadvertently short out the battery terminals on the cradle, you will get a spark, this would not normally cause any issues with the kit, but might make you jump!

Note: the installation of the rack for rear-rack batteries is fairly self explanatory, but if you do require assistance, email support@wooshbikes.co.uk

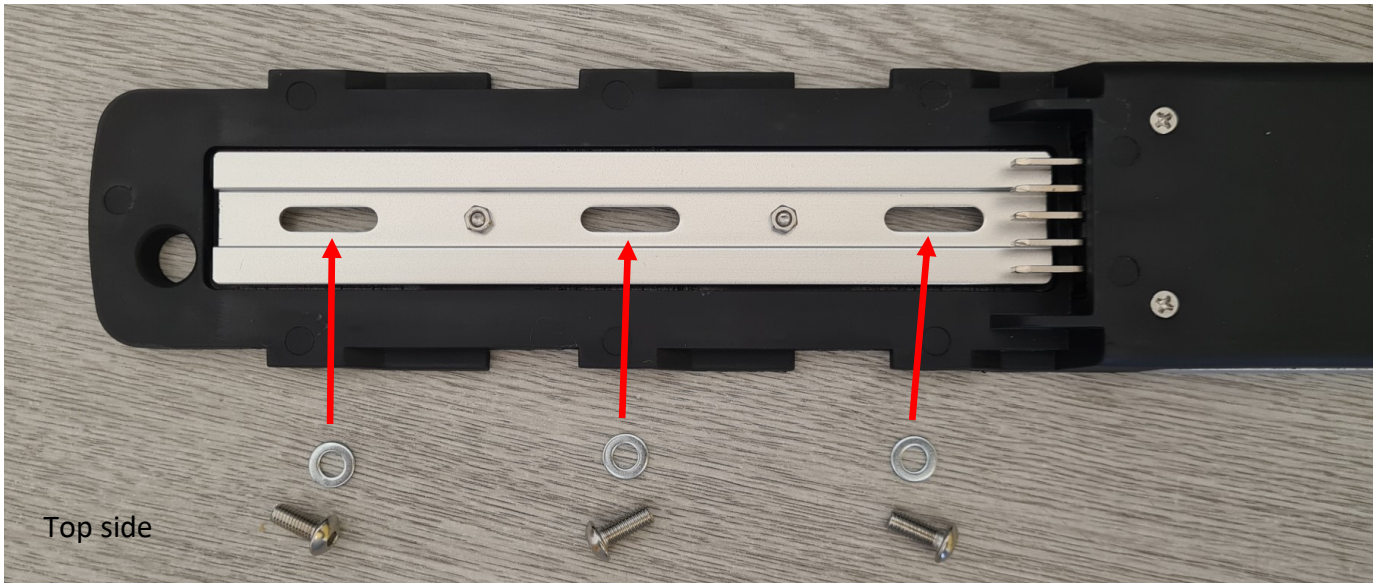
Battery Cradle—Type 1

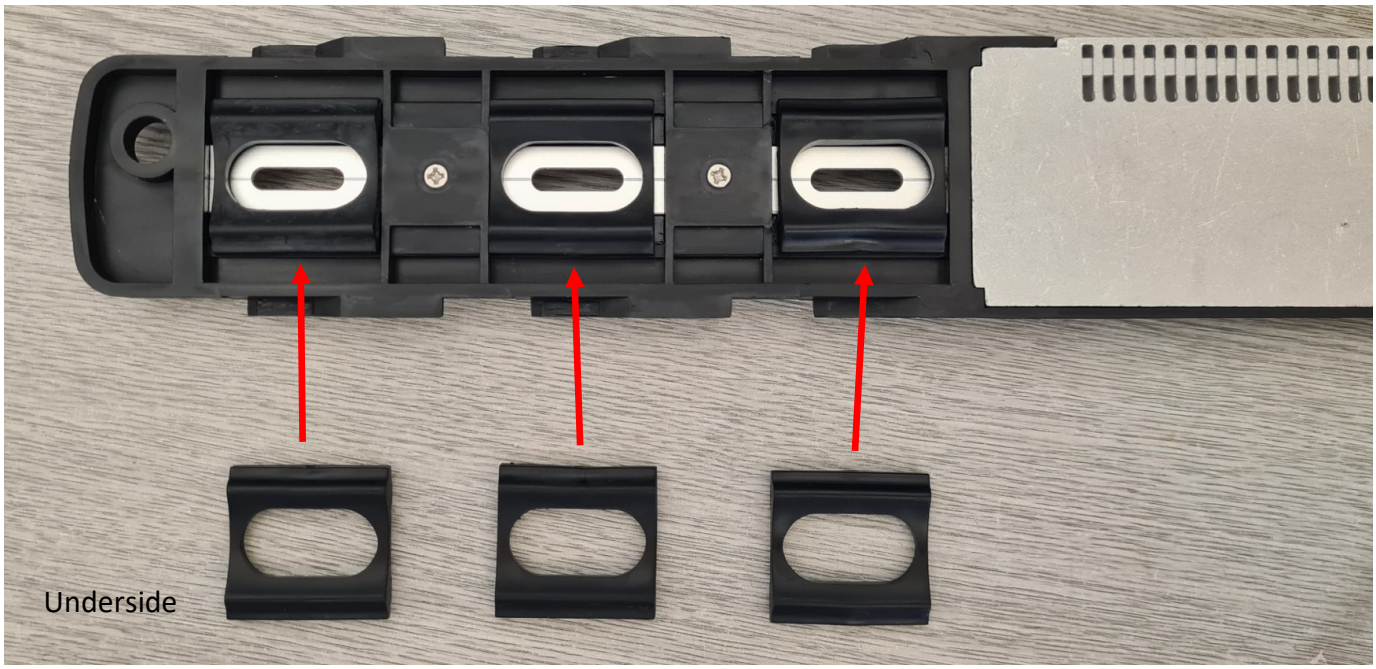




The washers and spacers must be fitted as per the above. If you don't fit the washes on the top side, when you tighten the bolts, the plastic will deform and eventually break. The rubber spacers should be fitted to the underside between the frame and the cradle.

Battery Cradle—Type 2





The rubber spacers should be fitted to the underside between the frame and the cradle.

Motor wheels

Move your existing tyre, tube and where applicable, the cassette and rotor over to the new wheel.

Note: If you have purchased the DWG22 rear hub kit and you have disc brakes, you will very likely need to change out your rotor for a 180mm one, and fit a suitable brake mount to bring the calliper out to suit the larger rotor.

If you have disc brakes, loosen the two calliper bolts before fitting the wheel to the bike. This will allow you to more easily align the rotor in relation to the pads as you drop the wheel in place.

When dropping the wheel in place, please note that the cable exiting the motor-hub should point downwards towards the ground.

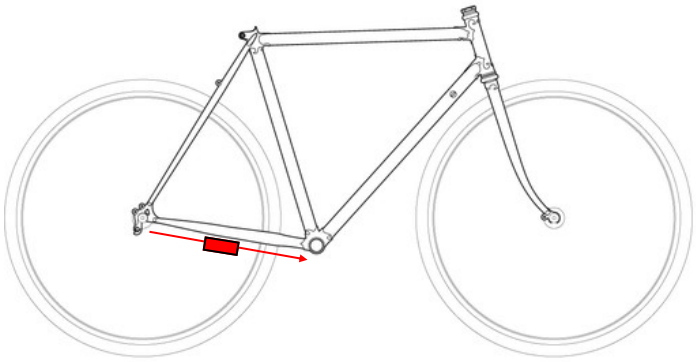
There is a cut-out where the cable exits the axle. This cut-out and the cable should face downwards towards the ground. In the case of a **front wheel**, the cable should also **exit downwards before looping back up** and along the fork. This is to prevent water running down the cable and into the opening.

The metal coil should be in the position shown above so that it protects the cable from the edges of the axle where it exits the hub. If the coil is out of position, just slide it in down the cable until it is in the correct position.

Our wheels will generally come with the nuts and washers in place on the axle in the order that they should be in when the wheel is installed. You can re-arrange these if necessary, for instance, the torque washer can be installed on the outside of the dropout if required.

To complete the installation of the wheel, fit the nut covers. The left side cover simply pushes over the nut, the drive side cover should be slid down the cable and then over the nut.

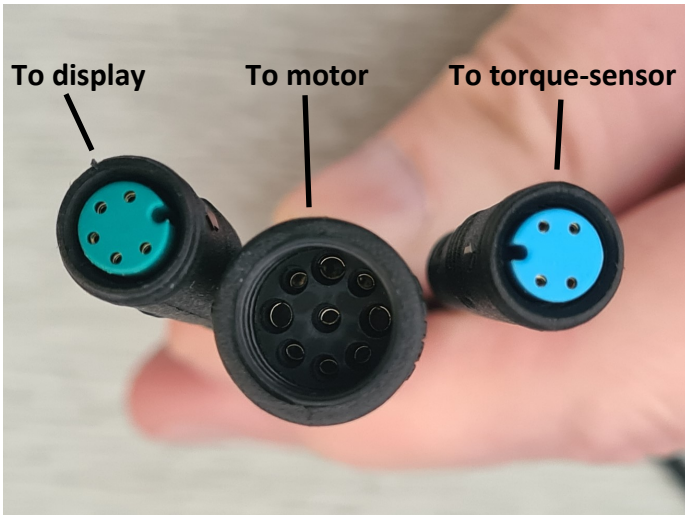
The motor cable should be run along the chain-stay (in the case of a rear motor wheel), cable-tied in position, and join with the cable coming from the controller. There are arrows on the connectors, these need to be aligned, and then the connectors pushed fully/firmly together. Make sure that the larger 'outer' connector is pushed all the way up to the line on the smaller/inner one.



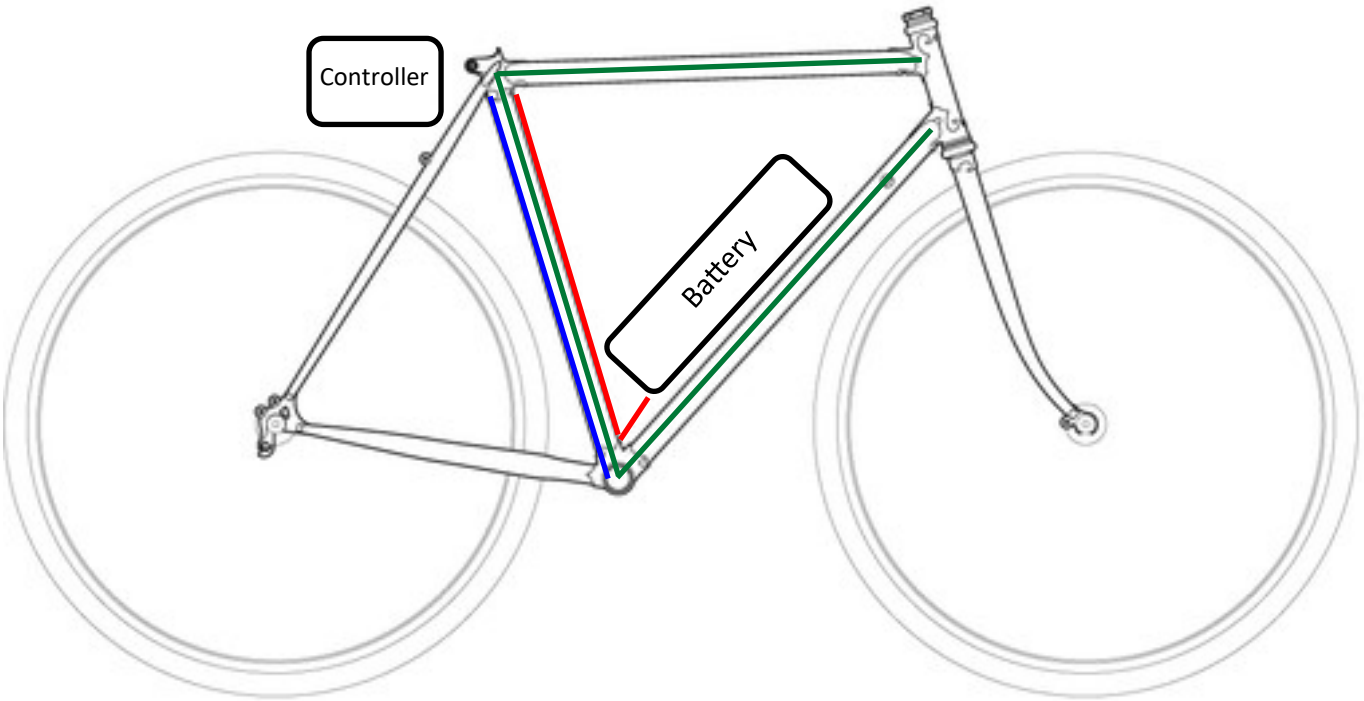
Note: The cable exits the right-side of the hub on all of our current motor wheels, aside from on the Q70/ Brompton kit, where it exits on the left.

Controller/Saddle Bag

The controller is installed in a bag that fits just behind/below the saddle. There are four cables coming from the controller, these are for the display, torque-sensor, motor, and battery.



The diagram below shows the expected route for the cables, with the **display cable shown in green** (two possible routes), the **torque-sensor cable shown in blue**, and the **battery cable shown in red**. The motor cable is not shown, but would normally run down the seat-tube, and then along the chain-stay towards the rear hub, or in the case of a front wheel, it would run down the seat-tube, and then along the downtube, then down the fork towards the hub.



Display

This kit comes with the M5 LCD. This unit is installed in the middle of the handlebars, and has separate buttons that would normally be mounted on the left side, within reach of a thumb...

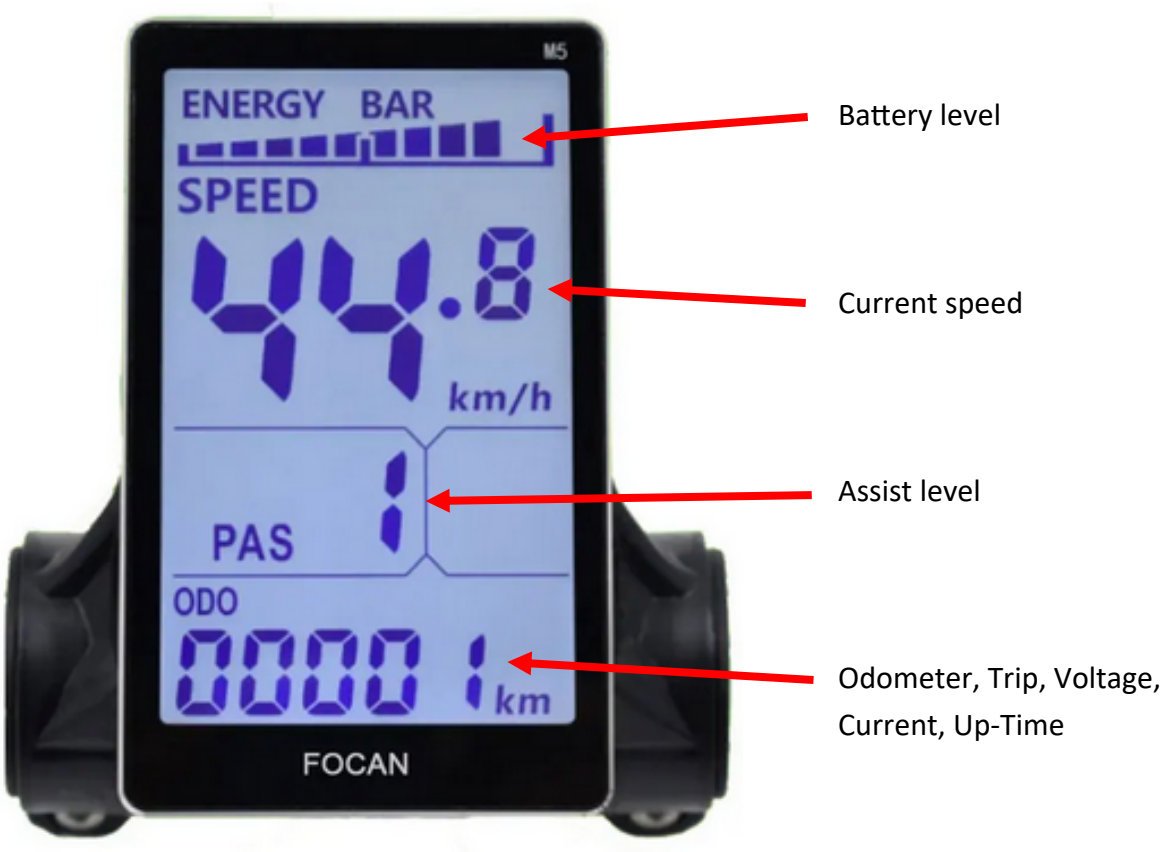
Once the display is installed, you will need to set the diameter of your wheel. To do this, switch on the display by holding the middle button until the screen illuminates, and then press and hold both the up and down keys together until the display changes to show P01 as per the below. Tap the middle button until the display shows P06—and then use the up/down buttons to set the correct diameter (at the bottom of the screen). Press and hold the middle button to save and exit.

Your kit will be set to be road-legal when it leaves Woosh, and so the only other settings you may want to change are the back-light intensity which is P01, and perhaps change from miles to km - P02.

P03 is used to switch between 36V and 48V operation, and should only be checked/changed if the kit is being used with a 48V battery.

Do not change any of the other settings without consulting Woosh Bikes first, as you may end up with a malfunctioning kit, and you may also void your warranty.

Display continued...



The bottom part of the screen can be switched to show different things, these are:

Odometer, Trip Computer, Battery Voltage, Current, Up-time.

Tap the middle/Mode button to switch between these options.

Tap and hold the middle/Mode button to turn off the display.

Battery care:

Some care is needed to ensure that the battery performs at its best and lasts as long as possible. All batteries age over time, and the way that they age is that the range will gradually decrease. Follow the instructions below to ensure your battery performs as well as possible for as long as possible. Charge the battery once or twice per week as needed.

Do NOT charge the battery in extremely cold conditions. The battery can be charged on or off the bike. Allow the battery to warm up to room temperature before charging.

If the battery is not in regular use i.e. over the winter, try and store the battery at around 50% to 60% full.

General battery care:

Do not attempt to open the outer casing of the battery.

Do not attempt to repair the battery.

Do not immerse the battery in water.

Keep the battery away from children.

Do not drop, pierce or otherwise damage the battery/casing.

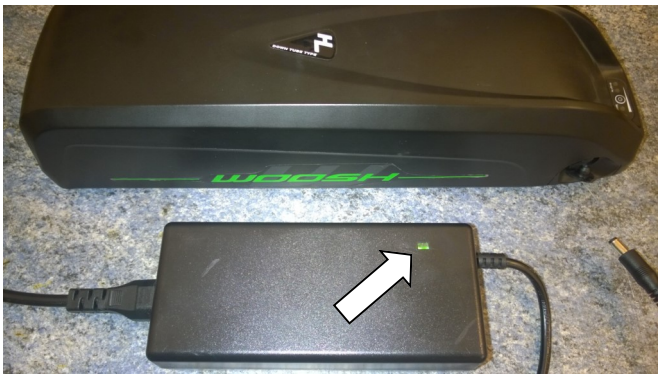
Ensure the battery is not exposed to temperatures above 55 degrees Celsius or extreme humidity.

Do not use the bike in an environment where temperatures are below -5 or greater than 45 degrees Celsius.

Lithium batteries do not perform at their best during the winter months, and so the range may be lower during this time.

Charging the battery:

Plug the charger into the socket on the side of the battery, then plug the other end into the mains socket and switch it on. While the battery is charging, the LED on the charger will glow RED, when charging is complete, the LED will go GREEN. If the charger is on but not attached to the battery, the LED will also be GREEN.



Troubleshooting tips

General troubleshooting

Check that all the connectors are properly mated and that there aren't any damaged connectors/cables or bent pins on any of the connectors. Check that the battery is charged and that it is properly seated on to the cradle.

No speed registering on the display/bike powering down after 10 minutes:

This likely means that the motor cable is not fully mated. Check the connection and push the connectors fully/firmly together. If you have the issue of no speed showing, you may also experience the power shutting off every 10 minutes or so.

No drive from the motor or motor is very weak: As above, check that the cable to the motor is fully mated.

The LCD shows a speed that is much higher than the actual speed: This means that your motor has 6 magnets inside, rather than the usual 1 magnet. Enter the settings on the LCD and navigate to P07 and change the value from 1, to 6.

Woosh Support:

Support for kits is primarily via email. If you have an issue, send us an email with a description of the issue you have, and pictures (and/or a video) of the issue if it's something that can be shown.

Emails are usually responded to within an hour or two on weekdays assuming they are received during office hours. It may take longer to respond during busier time, but still within 24hrs.

Support is limited at the weekend and holiday periods i.e. Christmas and bank holidays. Emails received over the weekend or during holiday periods may not be read and replied to until the next *working* day.

Email: support@wooshbikes.co.uk