

# **Fitting Guide for**

# Hub Kits

**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. 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.

#### What's in the Box

Ensure that you have all the parts listed below before going any further, if there are any missing parts, contact us on 01702 435566.

The motor kit comprises of a motor wheel with hub motor, a downtube battery cradle (or rear rack) with integral controller, a battery, a charger, modular cable/loom, pedal-assist sensor, and a KingMeter KM529 LCD. The thumb-throttle and brake sensors are optional. The picture below should allow you to identify the various components. Not shown in the photo below are the battery itself, the charger, and the motor wheel (which will differ depending on the type ordered), ensure you have the complete kit before you start.



HL Kit

# Installation of the various Pedelec Assist Sensor (PAS) types

There are three types of PAS that can be used, two that fit on the right side of the bike, and a left-side sensor, which slots into splines in the cup on the left side of the bottom bracket.

The **right-side PAS** kit consists of two parts, these are the sensor itself and the PAS disc. There are two different options for the disc/magnet-ring part of the PAS kit (see below-right), depending on whether you have a square taper bottom bracket or something else. The sensor is mounted on a ring which is normally secured behind the lip of the fixed cup, or behind the right bearing shell (in the case of a BB with external bearings). We can also supply this sensor on a 3D-printed part which is then just cable-tied around the seat-tube, for when the other method is not appropriate.

The PAS disc for square taper bottom brackets is simply slid down the spindle so that it is close to, but not touching the sensor. For all other types of bottom bracket, you would need to use the split-disc which comes in three parts—the two halves of the split disc, and the support/mounting plate. Ideally, the mounting plate is cable-tied to the smallest chain ring (using the loops around the outside of the plate), and the two halves of the split-disc are then glued to the plate. In some cases, there is not always enough room to do this, and the ring needs to be bonded directly to the smallest chain ring and/or you may need to use the **seat-post mounted sensor** instead—see next page.



# **Installation Notes:**

You need to ensure that the disc is the correct way around on the axle. The disc should be fitted such that the arrows on the disc are on the left side (facing the sensor). For other non-square taper bottom brackets, the two halves of the magnet ring only fit on the mounting plate one way, so you can't get it wrong.

With external bearing shells, it is sometimes necessary to fit a spacer behind the shell, you can usually just take one from the left side and move it over to the right.

**NOTE:** We rarely supply the supporting bracket for the split-disc these days, most people just bond it to the back of the smallest chainring. See the next page for an example of this.

# Seat-tube mounted PAS & split-disc:

The seat-tube mounted sensor is shown below and is simply cable-tied to the lower part of the seat tube. If the sensor isn't sitting back far enough, you can remove one of the plastic spacers on the rear of the unit. The split-disc is supplied with sticky pads to get you up and running, but a more permanent solution should be implemented ASAP.





Left-side pedelec assist sensor (PAS):

The left-side PAS slides down the spindle on the left (non-drive) side of the bottom bracket and meshes with the splines in the cup. This PAS is not suitable for *all* square-taper bottom brackets, if you have a plastic cup (as opposed to a metal cup), the left-side PAS will likely not be suitable. Although they look very similar, the left-side PAS will not mesh with the plastic cup.

The left-side PAS also requires a gap of 7mm between the rear face of the left crank and the bottom bracket. if it is less (and you can't use a right-side solution), you may need to swap out the bottom bracket for a longer one, or shave a little off the rear face of the left crank.



#### **Downtube Batteries**

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 two 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 <u>www.amazon.co.uk</u>—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 downtube, and that the battery is not obstructing anything else.

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



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.





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![](_page_7_Picture_2.jpeg)

#### 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 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 align the rotor in relation to the pads as you drop the wheel in place.

When dropping the wheel in place, ensure that the orientation is such that the cable exiting the motorhub points downwards towards the ground.

![](_page_8_Picture_5.jpeg)

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** towards 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 to suit though, for instance, the torque washer can be installed on the outside of the dropout if necessary.

To complete the installation of the wheel, fit the nut covers. The left side cover simply pushes over the but, 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, 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.

![](_page_8_Picture_11.jpeg)

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

#### Handlebar Components

The display would normally be mounted on the left side. If you are using throttle, you *will* need to fit one of the three types of brake cut-outs: replacement levers (for cabled brakes), inline sensors (for cabled brakes), or hydraulic brake sensors.

If fitting a thumb-throttle & brake levers, slide the grips off, loosen the existing components, and remove any that are being replaced, then slide the thumb-throttle (and levers if being used) in place, and then retighten the bolts to secure them in place. The display should be fitted after the other components are in position. The throttle is universal and can be fitted to either side, but is generally fitted to the right side, and the display on the left.

![](_page_9_Picture_3.jpeg)

If you have hydraulic brakes or brake levers that have an integral gear shifter, you will need to use the hydraulic sensors. As the magnet moves away from the sensor, the cut-out is activated, it should be fitted as shown below.

![](_page_9_Picture_5.jpeg)

Inline Sensors: Feed the brake cable though as shown below-right. Be sure to use the plastic insert between the sensor and barrel adjuster.

![](_page_9_Picture_7.jpeg)

The next step is to run the cable (for the LCD, and throttle/brake cut-outs if applicable) from the handlebars to the controller. The controller will be located on the downtube, or the rear rack depending on which battery type you have chosen. The cables can be routed in whichever way suits best, ideally leaving the least amount of slack.

![](_page_10_Figure_1.jpeg)

Ensure that there is enough play in the cables so that they do not get stretched or pulled as the handlebars are turned.

The connectors are all colour coded and should be mated with the matching colours on the modular cabling. There are arrows on each connector which must be lined up before pushing the connectors together. In some instances, the cable from the LCD may be green, this mates with the black/green connector.

![](_page_10_Picture_4.jpeg)

Replacement levers and hydraulic sensors come with red connectors, and the inline sensors will come with yellow connectors. The loom will match the type of brake sensors chosen. If you have opted for the display-only option, you will have a slimmer single cable that does not split into four connectors, but instead goes directly to the display.

If you have too much slack in the cables, you will need to coil them up and secure them with cable-ties as tidily as possible. Ensure that none of the cables are hanging loosely or in a position where they may get caught/snagged on any other parts.

### **Controller Connections:**

Exiting from the bottom of the battery cradle or the rear-rack are three cables, these are for the motor wheel, the pedelec sensor and the modular/display cable. The modular cable runs up to the handlebars and connects to the display, the thumb-throttle and the brake sensors. All of the connectors have arrows on them that need to be correctly aligned before pushing the connectors firmly together.

![](_page_11_Picture_2.jpeg)

**Note:** There is no connection for a speed sensor. The speed sensor is built in to the motor hub, and the signal is carried by the motor cable to the controller.

The connectors on the rack kit are identical to the connectors found on the downtube kit.

# KM529 LCD—Control Panel

The LCD has many advanced features and modes, these include back-lit display (for night riding), indicator options for max speed, average speed and current speed and a battery power indicator. It also features a walk-mode which is used when you want to wheel/push the bike, this is basically a low speed mode which is activated by pressing and holding the minus (-) button, this can also be used as a start-aid.

![](_page_12_Figure_2.jpeg)

# Warning:

The LCD comes pre-configured, and is limited to 15mph. Incorrect settings could cause damage to the kit components and also result in a bike that is not UK road legal. Modifications made to the controller configuration will void your warranty if found to be a contributing factor to a failure.

# Turning the LCD On/Off

To turn on the LCD, press and hold the top (Mode) button. Press and hold the same button to turn off the LCD and disable all electric features of the bike.

# Backlight

To turn on the backlight, press and hold the "Up" button. Press and hold the same button to turn it off.

#### Varying Pedal Assist Level

To change the level of assistance provided simply press the Up/Down arrows to choose one the five level s of assistance. Level 1 offers the least assistance while level 5 offers the greatest assistance.

#### **Speed Display Mode**

There are three different modes for the speed display, these are current speed, average speed and maximum speed. To switch between these modes, press and hold the "Up and Mode" buttons for approx. 1 second to cycle through the modes.

#### Walk-Mode

The bike also supports a walking mode which is basically a very slow mode allowing you to walk next to the bike at approx. 6m/h. This is activated by pressing and holding the "Down" button. As soon as the button is released, the bike will stop. This can be used to start off, if you find it difficult from a stand-still.

#### **Display Mode**

To switch between Odo (overall distance travelled) and Trip mode (current trip distance travelled), tap the "Mode" button.

#### To reset the trip computer press and hold both the top and bottom buttons together.

#### 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 you can achieve will gradually decrease. Follow the instructions below to ensure your battery performs as well as possibly 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.

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 55 degrees Celsius.

Lithium batteries do not perform at their best during the winter months, and so the range may drop during winter months.

# 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.

![](_page_13_Picture_15.jpeg)

![](_page_13_Picture_16.jpeg)

# **Troubleshooting tips**

**Error 25 shown immediately after switching on the LCD:** This means that one of the brake sensors is active when it shouldn't be. Ensure that your fingers are clear of the brake levers and that the levers have fully returned to the rest position. If the issue persists, unplug one of the brake sensors to determine which lever is causing the issue, and once known, investigate the issue with that sensor.

In the case of hydraulic sensors, it could be that the sensor or magnet has moved, and the distance between the sensor and the magnet has increased, this will cause the cut-out to activate.

If this is not able to be resolved quickly, you can unplug the offending sensor, and investigate further later. Do not ride the bike with both sensors unplugged though, unless you also unplug the thumb-throttle.

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 will also likely 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 motor is surging and not accelerating smoothly:** It is likely to be an issue with the pedelec. If using a right-side solution, it is likely that there is an issue with the position of the magnet disc/ring and/or the sensor. If the disc/ring is too far away from the sensor, it can behave erratically. It will also do this if the disc is not running true, and wobbles from side to side as it rotates.

This can also occur If the sensor has been knocked and is no longer in the correct position.

**Motor doesn't kick in when pedalling:** Check the pedelec sensor first as mentioned above, the distance between the sensor and ring/disc could be too great.

Check that the red LED on the sensor flickers as the cranks are rotated. Assuming it is, unplug the brake sensors and throttle and then try pedalling again. If it then works, plug the brake sensors and throttle back in one at a time, trying the bike again each time until you have identified which component ic causing the issue.

If the LED on the sensor does not flicker as the cranks are rotated, check the position of the sensor and the magnet ring/disc, and check the lead coming from the sensor, it may have gotten pulled or damaged.

**Thumb-throttle not working:** Check that the button underneath the thumb-throttle is in the 'latched' position.

# Woosh Support:

**Support for kits is done 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.

During the working week (Mon to Fri), emails are usually responded to the same day.

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

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