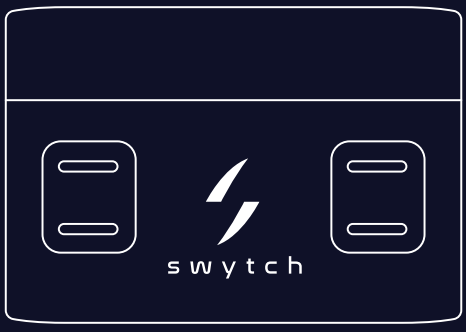
swytch



Instruction Manual

For full instructions and fitting videos, please visit;

www.swytchbike.com/instructions

Contents

1

Safety Warnings

To ensure a safe and trouble-free experience when using your Swytch Conversion Kit please follow the guidelines below:

1. **Fully charge before first use**
   Before installing your kit make sure to fully charge the Power Pack until the charger light goes from red to green. This should be done within a month of receiving your kit.

2. **Never leave on charge**
   Avoid leaving on charge for longer than necessary. Extended periods left on charge can lead to reduced life of the battery.

3. **Hear the "Click" when attaching the Power Pack to the Handlebar Mount.**
   Make sure that the Power Pack clicks into place when attaching onto the Quick Connect Handlebar Mount. The Power Pack must be fully attached to the mount to ensure safe use.

4. **Tighten up before riding**
   Please ensure all nuts, screws and bolts are tight before riding. Any loose parts could result in the motor wheel coming off during riding. Every 100km tighten your wheel spokes to ensure the wheel remains secure.

2

Quick Start Guide

The process can be summed up in four simple steps:

1. **Fit the Motor Wheel**
   Motor cable on the left of the bike.
   Re-adjust the brakes if necessary.
   Tighten wheel nuts.

2. **Fit the Pedal Sensor**
   Magnet disk on left of the bike.
   Mount sensor close to the magnets.
   Smooth side facing the sensor.

3. **Fit the Handlebar Mount**
   Tilt Mount 45° upwards when fitting the strap so it is in tension when horizontal.

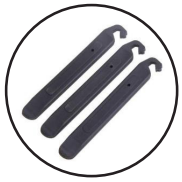
4. **Connect and Go!**
   Firmly press connectors together.
   Secure cables to bike frame.

3

Tools Required

(not included)

Allen Key Set



Tyre Levers

Bicycle Pump

Adjustable Spanner

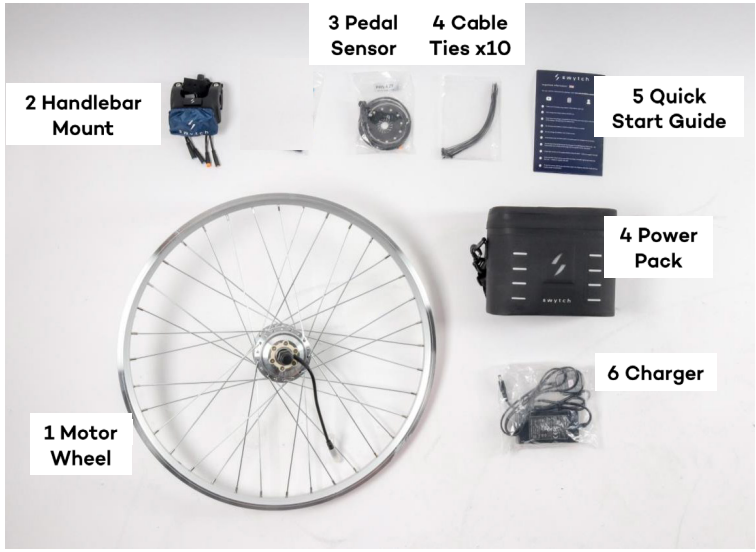
Scissors

4

What's in the Box

Check everything is there before you start. Please keep the original packaging until after you've fitted the kit.

Every kit should have the following parts:



All kits should contain the following parts, please check them off before starting the conversion.

Hub Motor Wheel ☐

Quick Connect Handlebar Mount ☐

Swytch Power Pack (ECO/PRO) ☐

Universal Pedal Sensor / Brompton Pedal Sensor ☐

Cable Ties x10 ☐

2A Standard Charger (UK, EU, US) ☐

Brompton Extension Peg (16” Brompton Kits Only) ☐

3A High-Power Charger (Optional add-on) ☐

Brompton Block (Optional add-on) ☐

Torque Arm (Optional add-on) ☐

Thumb or Twist Throttle (Optional add-on) ☐

T-shirt (Optional add-on) ☐

In-line Brake Sensors / Hydraulic Brake Sensors (Optional add-on) ☐

5

Installation

5.1 Motor Wheel

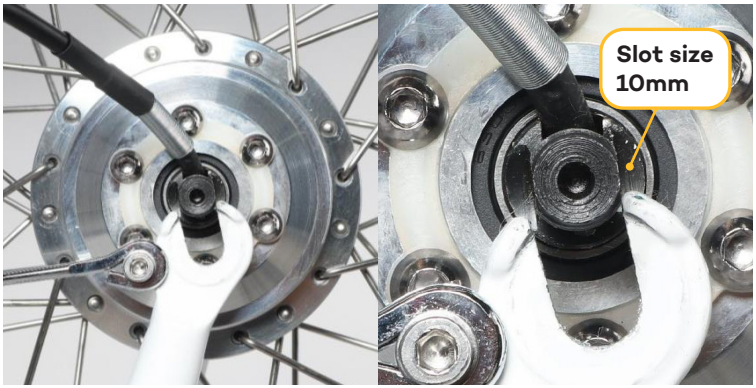
1. **Remove your front wheel and existing tyre from your bicycle.**
   Swap the inner tube and tyre from your bike's original wheel to your new Swytch motor wheel.

   If your tyre tread is directional, make sure to face it the correct way. Pump up the tyre to the manufacturer's suggested pressure.

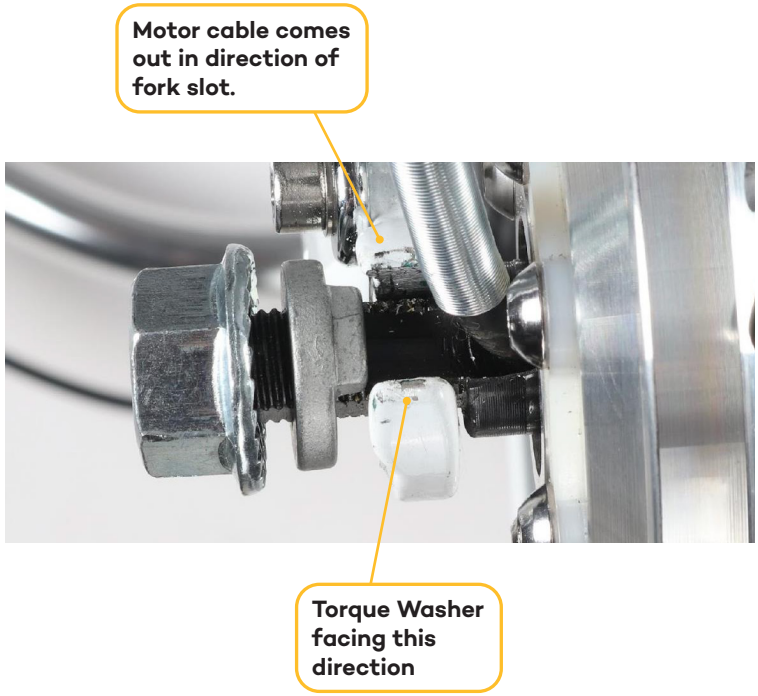
2. **Fit disc brake disc (optional)**
   If you have disc brakes, move the disc from your old wheel to your new Swytch motor wheel. Bolts should have an 8mm thread length.

3 Check orientation of motor
The motor cable should be on the left of the bicycle (opposite side to the chain).
Ensure the motor cable is pointing down towards the ground when the bike is upright. If the motor cable exits the other way around it could get damaged.

4 Check the axle goes in all the way
The flat sides of the axle should fit within the forks. If it does not fit, check the troubleshooting section.

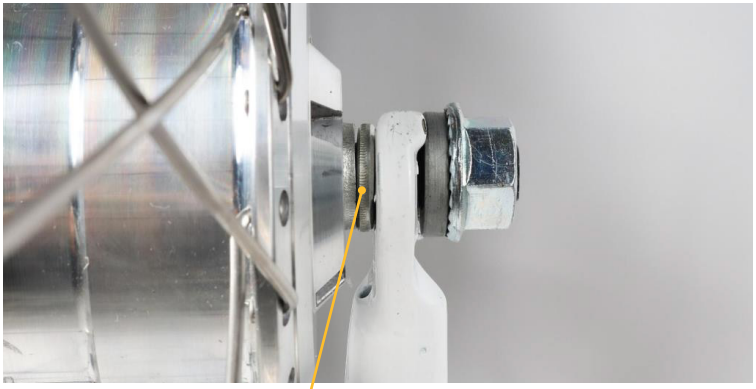


5 Fit the torque washer into the fork slot
Assemble the motor wheel to the forks with the torque washers installed as shown. The torque washer lip should fit inside the opening of the fork.



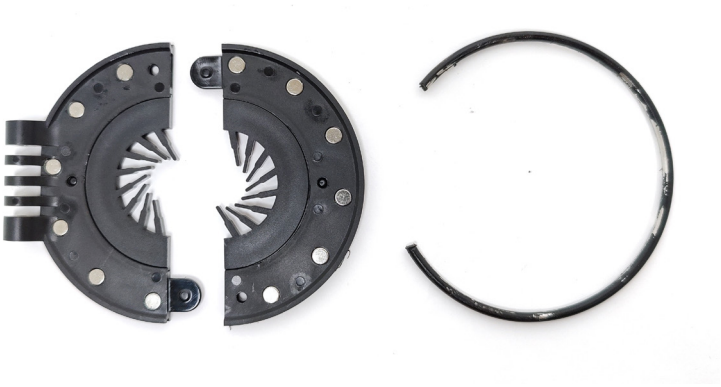
6 Tighten the Wheel Nut
Assemble both axle nuts tightly with a spanner.

7 **Check motor spins correctly**
Spin the motor wheel with your hand to check it can spin freely and isn't touching the forks. If it is touching, please check the troubleshooting section. The wheel should be harder to turn backwards than turning forwards. If it is the opposite, then the motor has been installed backwards.



8 **Adjust brakes (if neccessary)**
Adjust the brakes, then test them to make sure they are working. When adjusting the brakes follow the bicycle manufacturer's instructions..

5.2.1 Easy Fit Regular/Thin Magnet Disc



1 **Magnet disc**
Fit the magnet disk either side of the crank axle.
The side of the bike should be opposite the side with the chain.
The smooth side of the magnet disk must be facing the sensor.

2 **Fit Retention Ring**
Fit the retention ring around the magnet disk to secure it in place.

3 Once aligned in position, tighten the bolts to lock the disk arm into place.

5.2.2 Universal Magnet Disk

When switching between the different sides, you will need to unbolt the arm and reassemble it flipped around so that the working surface of the magnet disk remains facing the same way.

1. Before starting, clean your pedal arm of any dirt and debris. This will allow the pedal disk arm to fit securely to the surface.

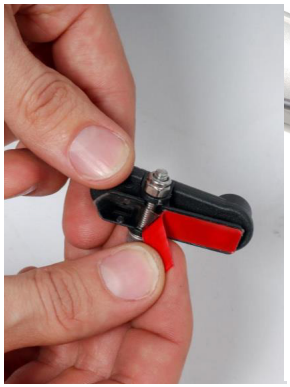
2. Loosely cable tie the magnet disk arm to the inside of your pedal arm in at least 2 points. Reposition the magnet disk so that it is close to the sensor and aligned. Check that the alignment is correct by rotating the pedal arm backwards and watching for any movement. After this check, tighten the cable ties completely.

3. For small pedal arms, thread the cable ties through the holes to improve the grip.

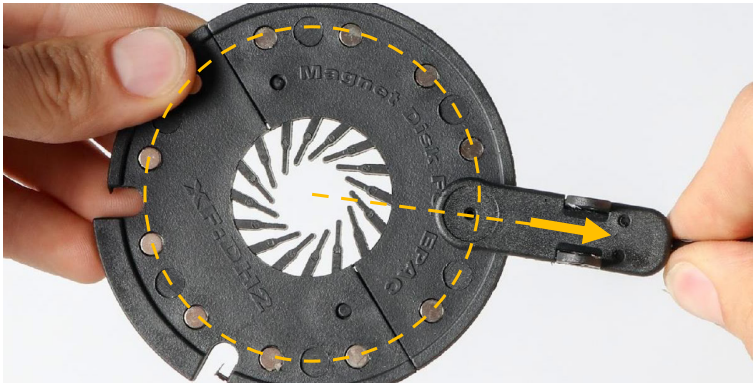
4. Once aligned in position, tighten the bolts to lock the disk arm into place.

5.2.3 Pedal Sensor Alignment

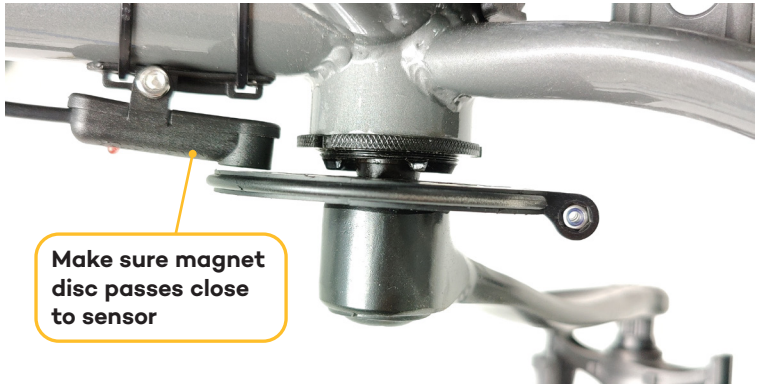
1 **Attach Pedal Sensor to bike**
Remove the red pedal sensor cover. Attach the sensor to the frame and secure using cable ties as shown below.



2 **Line up sensor to magnet arc**
Ensure that the centre of the sensor is aligned with the magnets on the disk. There is a target on the sensor to help you align it.



3 **Check correct installation**
The photo below shows a correctly fitted pedal sensor. Adjust the pedal sensor to minimise the gap between the sensor and the magnet. Tighten the bolt to prevent it from moving.



5.3 Quick Connect Handlebar Mount

1 **Add rubber spacers to handlebars**
Fit the rubber handlebar spacers onto the handlebars. (22mm diameter handlebars only).
For larger sized handlebars (e.g. on mountain bikes) they are not required.

2 **Place mount onto handlebars angled upwards 45°**
Fit the Quick Connect Handlebar Mount over the spacers onto the handlebar, then rotate the mount to 45°.

3 **Fit the Anti-Twist Strap**
Pass the Anti-Twist Strap underneath the handlebar system.

4 **Tighten strap in place**
Secure the strap on to the other arm of the mount. Use the closest holes possible with the mount tilted upwards. Tighten the bolts.

5 Align Mount horizontally
Rotate the Mount to face horizontally. This will put tension in the Twist Strap and keep the Mount from turning any further. If in the future the Mount sags, simply adjust to a new hole on the Twist Strap.

6 Connect accessories
Connect the PAS to the Quick Connect Handlebar Mount. To connect the waterproof connector, find the arrow on each connector and align. Once aligned, push the connector pair together until no colour is visible.

7 Connect motor
Connect the motor to the Quick Connect Handlebar Mount. Secure the motor wire to the fork with the cable ties provided. Leave enough slack for the handlebars to turn.

8 Ensure the motor is fully connected – hear the “click”
To connect the waterproof connector, align the arrows and push together until the arrow on the motor wire connector is touching the Mount connector. The photo below is not properly connected.

BAD – not fully connected

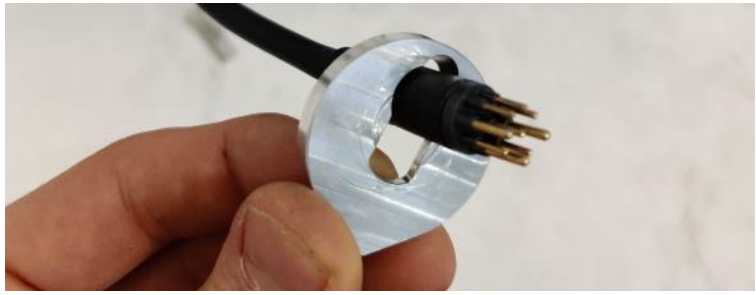
GOOD – fully connected

6

Brompton Specific Instructions

6.1 Brompton Motor Torque Washer

1. To fit the Brompton Torque Washer, first make sure to push the motor cable through the keyhole in the washer.



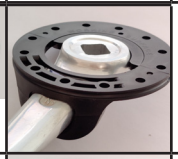
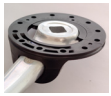
2. Remove any of the existing wheel washers.

3. If you have a mudguard, assemble it underneath the locking nut.

Be careful not to damage the motor cable when tightening the nut

6.2 Brompton Pedal Sensor

Assemble the Brompton Pedal Sensor by screwing the 2-part clamp over the pedal arm. Use the Brompton plastic insert to make sure the disk does not slip up the length of the arm.

What shape is the inside of your pedal arm?	Photo example	Use this configuration
 Brompton pre 2013		 PAS-BRO-A
replace pic Brompton post 2013		 PAS-BRO-B
Non-Brompton aftermarket		 UNIVERSAL

1 Check which pedal type you have

Type A (indented)

Type B (Not indented)

2 Assemble these parts onto the pedal arm.

3 This is how it should look when finished.

6.2.1 Brompton Pedal Sensor Alignment

1. Fit the sensor onto the small frame tube of the Brompton. Angle the sensor and add as many spacers needed to move the sensor within 3mm. Tighten the sensor screw to lock it in position and add cable ties to secure it to the frame.

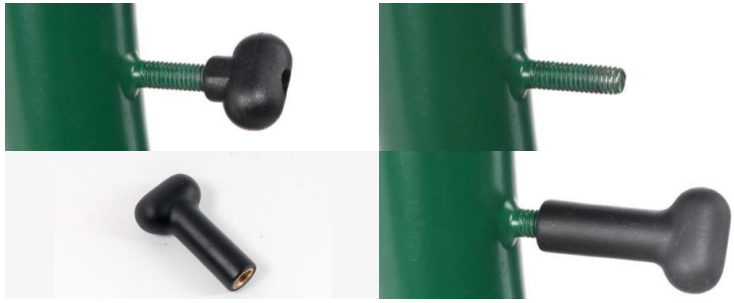
BROMPTON INCORRECT MOUNTING METHODS
Mounted onto incorrect tube. Magnets must pass from left to right of the sensor.

BROMPTON INCORRECT MOUNTING METHODS
Mounted onto correct tube but gap is too big

6.3 Brompton Peg

1. *Skip this step if installing a Brompton block.*

   Remove the existing peg from the Brompton frame and attach the extended peg that is provided in the kit. Screw the peg on by hand until it turns no further.



6.4 Brompton Front Luggage Block Adapter (BRO BLOCK)

The Bro Block Adapter allows the Power Pack to be mounted directly to the frame.

These parts are included in the Bro Block Kit:

Cable ties x10

M5x12 Cap Bolts x2

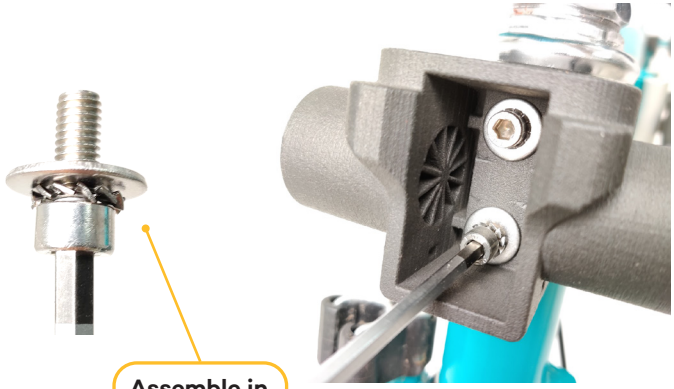
M5 Locking Washers x2

M5 Large Washers x2

Brompton Carrier Adaptor x1

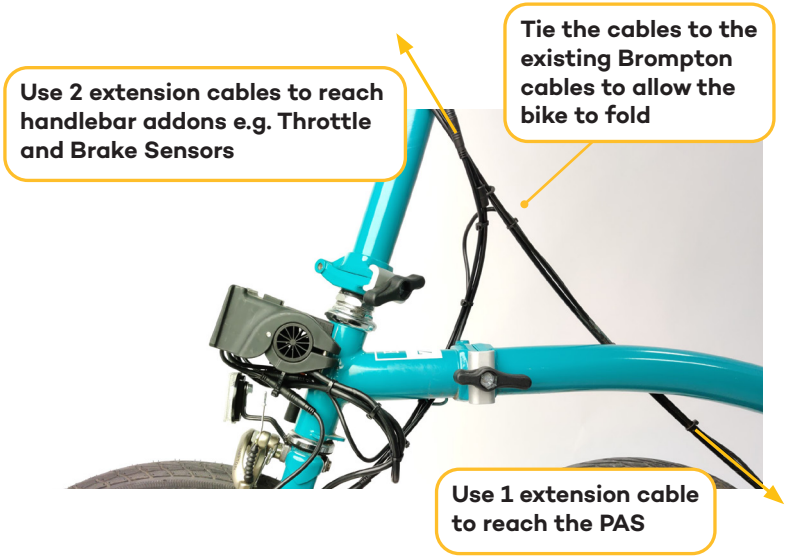
Pedal Sensor Extension Cable x1

1. Remove any existing hardware from the front of your bike.
   Fasten the bro block to the carrier mount attachment at the front of the Brompton. Be sure to assemble the parts in the order shown below.



2. Attach the Quick Connect Handlebar Mount to the adapter. Don't use the spacers or the twist strap.

3 Connect your Pedal Sensor, Brake Sensors and Throttle to the bracket. You will need to use extension cables to reach the new position.

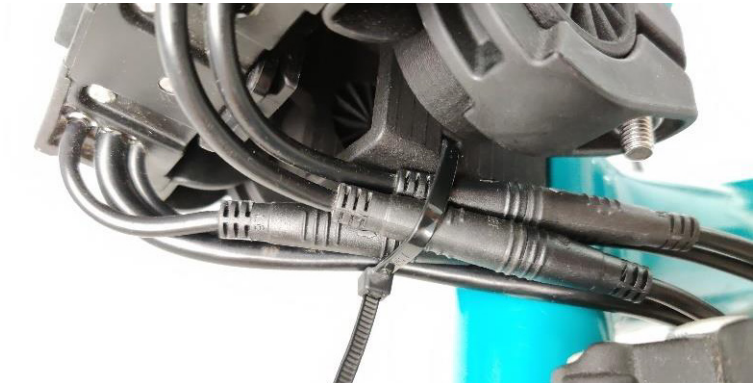


4 Shorten the motor cable by folding it back on itself and securing it with a cable tie. Make the loop the same length as the length of the Brompton Block Adapter.

5 Thread the motor cable through the hole in the Brompton Block Adapter to hide the excess cable as shown below.

7 This is how it should look once assembled.

8 Secure the cables underneath the bracket with a cable tie threaded through the hole in the bottom.



FINAL CHECKS
Check steering is not affected by turning the handlebars left and right. The turning should be easy.

Fold the Brompton and check that the new cables do not interfere with the fold.

6.5 General Tips

1 Check your brake pads are not touching your tyre. Adjust them if necessary. Make sure your motor wheel is assembled fully into the forks.

2 Follow the existing cable routing of your bike to enable it to fold like normal. Tie the PAS cable along the rear cable group, and the motor cable along the front cable group.

7

Accessories

7.1 In-Line Brake Sensors

Brake sensors provide an additional level of control and safety by turning off the motor immediately when the brakes are applied – they are an optional addition to your kit.

Without the brake sensors the motor will still turn off a moment after the pedals stop turning or the throttle is disengaged.

Fitting the brake sensors requires the brake cable to be removed and replaced. If this is not done properly then the brakes may not function correctly which can cause a serious accident. If you are not confident with working on your bike's brakes, then we recommend taking the bike to your local bike shop or bike mechanic for help fitting the sensors

1 **Fit the inline brake sensor to the brake cable**

Thread the brake cable through the cable guide and the sensor.

The arrow on the sensor should be pointing towards the brake lever.

Brake sensor goes "in line" with the brake cable, which is fed through it

Cable guide keeps it in line

2 **Reconnect the brake cable to your brakes**

If your cable is too short, use the spare provided to fit the rear brake and use your rear brake cable to replace your front brake cable.

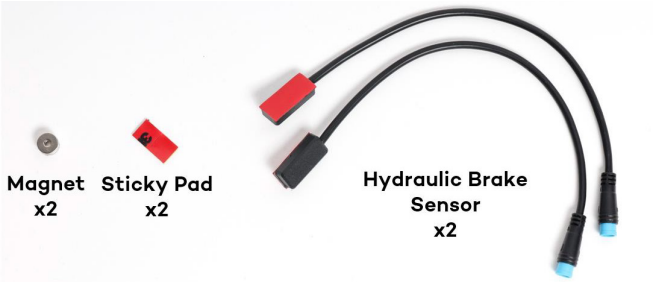
3 **Connect the brake sensor to the Quick Connect Handlebar Mount**

Repeat for the other brake.

Test by turning on the Power Pack and holding the (-) button to activate the walk mode and pull the brake lever to check if the motor stops turning

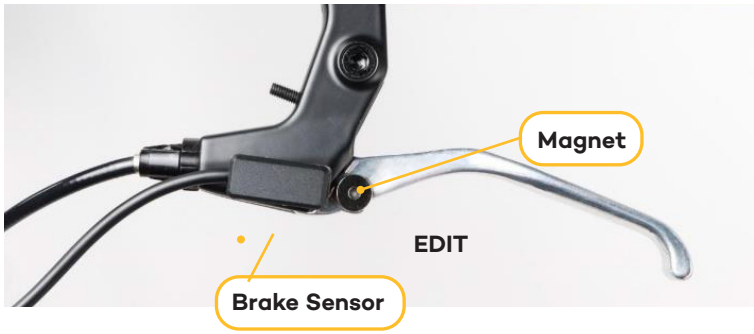
You can also assemble the brake sensors onto any point along the brake cable.

7.2 Hydraulic Brake Sensors



1 Fit the hydraulic brake sensor to the outside of the brake lever.

Stick the sensor to the brake lever base.
Stick the magnet to the brake lever.



2 Check the position of the sensor.

The magnet should be close when the brake lever is not used & far when brake is engaged.

Test by turning on the Power Pack and holding the down button to activate the walk mode and check the brake sensor stops the motor turning.

7.3 Universal Torque Arm

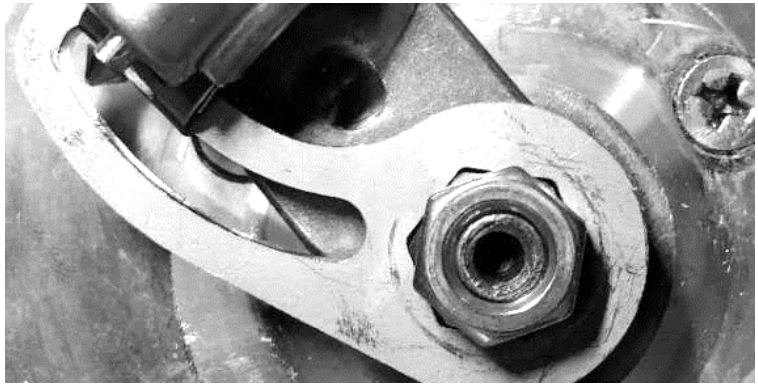
1 **Fit the Universal Torque Arm**

Fit to the side opposite to the motor wire.
Use the C-Washer or screw washers if necessary, to help with the fit depending on your fork dropout.
Tighten bolts and wheel nuts before riding.

7.4 Torque Narrow

1 **Fit the Torque Narrow onto the RIGHT-HAND SIDE of the bicycle**

Fit to the side opposite to the motor wire.
Fit Torque arm over a tightly fastened axle nut.
Tighten Jubilee clip on axle.
Break off excess clip by bending back and forth.
Use 2nd nut to secure torque arm to the axle.



7.5 Twist & Thumb Throttle

1 Fit the Throttle to the handlebars.

Should be on the right-hand side.
Cut hand-grips shorter to accommodate the size of the throttle.
Ensure that the brake and gear shifters operate normally before riding.

8

Operation

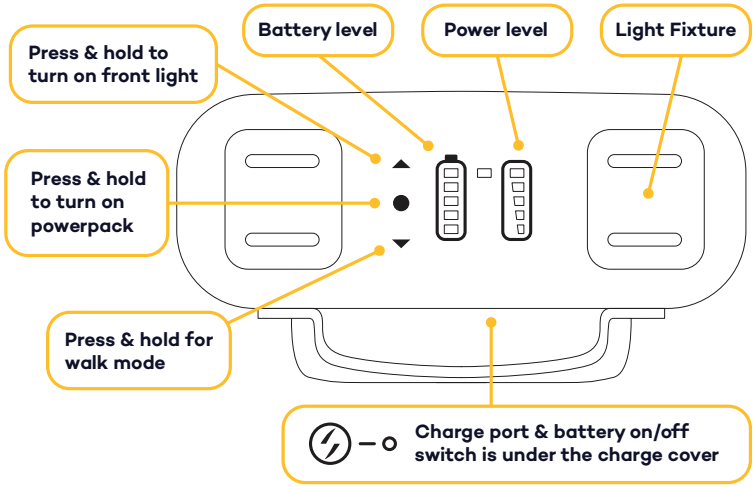
8.2 Power Pack Charging

1. To set up the Power Pack, you must first turn on the battery. The battery is shipped turned off for safety.

2. Do this by pressing firmly on the (-) symbol at the back of the Power Pack.

   Alternatively, use the back of the blade cleaning tool to flick the switch.

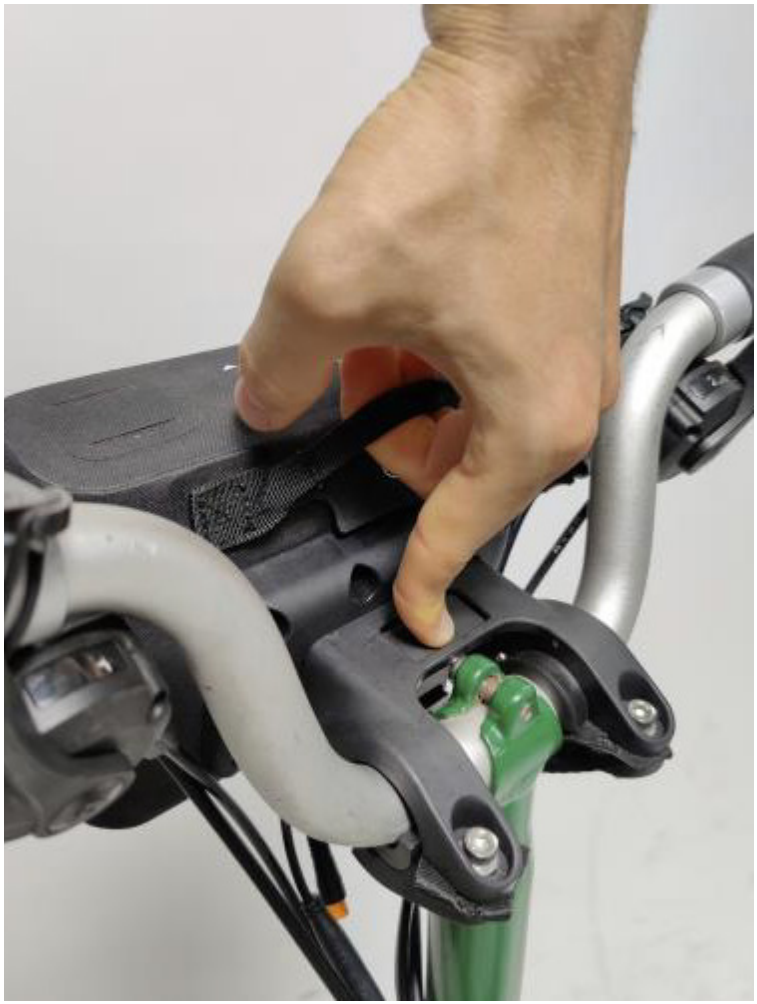
3 To charge the Power Pack, connect the charge port to the rear of the pack.



8.1 Power Pack Removal

Attachment
To attach the Power Pack to the handlebars, align the back of the Power Pack with the Quick Connect Handlebar Mount and slide downwards, pressing firmly until you hear a *click*.

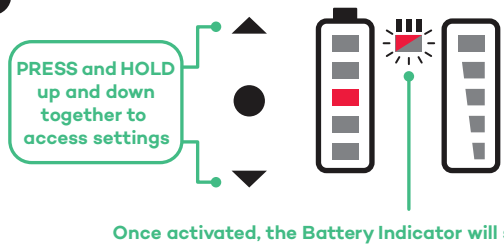
Detachment
To disconnect, hold the button on the Quick Connect Handlebar Mount and pull the Power Pack up with the handle. If it is difficult to disconnect, instead of pulling directly up, wiggle the Power Pack side to side.



8.3 Power Pack settings

This is how to access and adjust the settings in the Power Pack. For a video, visit: **www.swytchbike.com/instructions**

1



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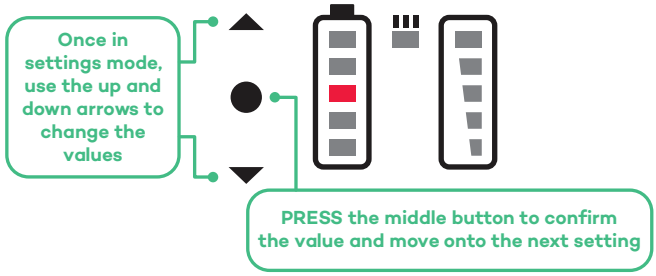

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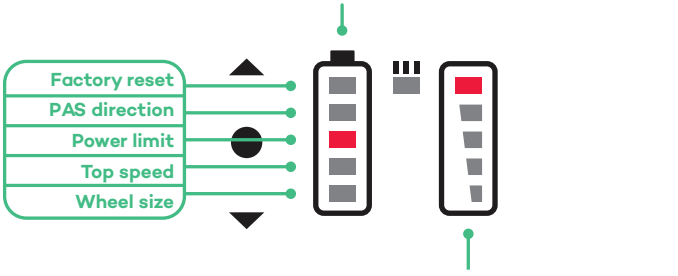
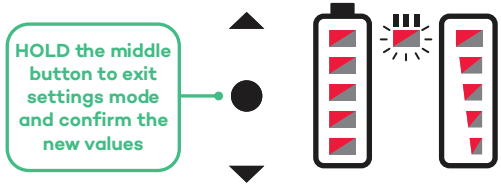
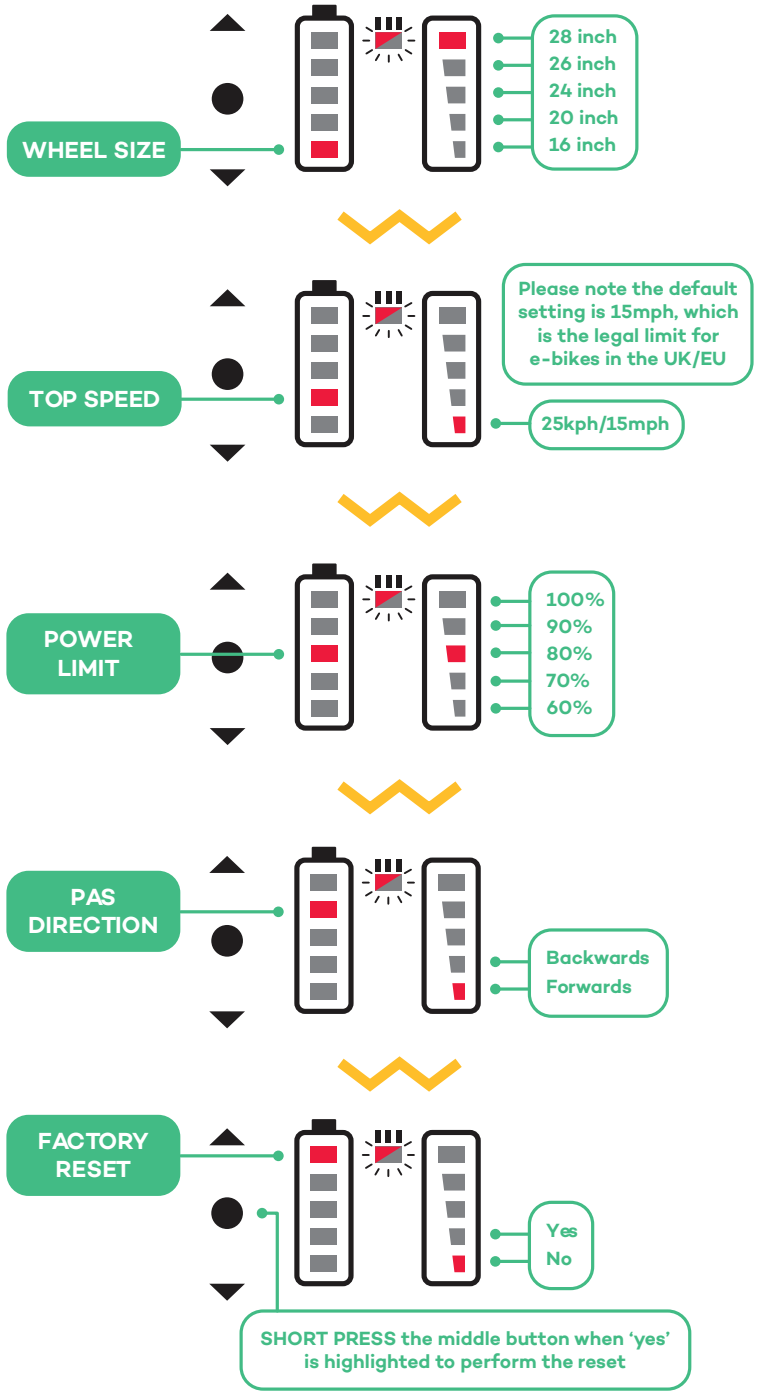


4



These are the different values available for each setting



9

Troubleshooting

9.1 Error Codes

These are the most common error codes that you may encounter with the corresponding solutions. For other error codes, check the LCD Display manual.

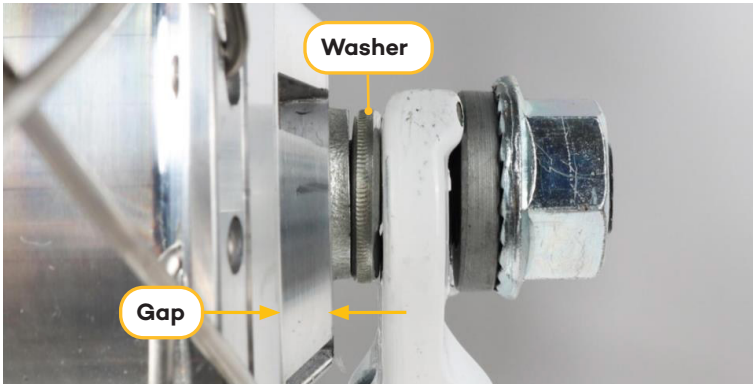
Lights	Problem	Solution
Flash at PAS Level 1	Motor Current Abnormality	Contact Customer Service for replacement item.
Flash at PAS Level 1 & 3	Motor Phase Abnormality	Contact Customer Service for replacement item.
Flash at PAS Level 5	Motor Hall Signal Abnormality	Fit the Hall Sensor Bypass Cable / disconnect the hall sensor cable
Flash at PAS Level 3 & 5	Brake Abnormality (Commonly happens when the brakes are engaged before the Power Pack is turned on)	Turn off the brake sensors before turning on the Power Pack. Brake sensor light will indicate when it is on. Alternatively, turn on the Power Pack before connecting to bike.
Flash at all levels of both PAS and Battery	Communication Abnormality (Controller and Display aren't connected)	Check the display is connected to the controller inside the Power Pack

Brake sensor light will indicate when it is on.

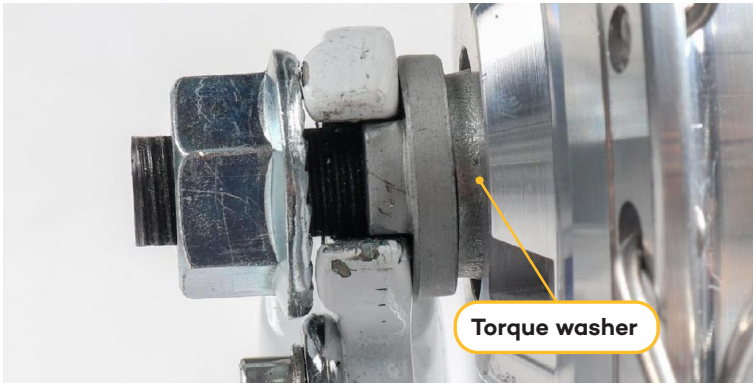
9.2 Motor Wheel isn't spinning freely

1. First check that the brakes are properly adjusted and are not touching the rim.

2. Next check if the motor casing is touching the forks. If it is, you need to increase the gap between the forks to fix this. The best way is to add a washer to the axle as shown below.



3. Alternatively, move the torque washer to the inside of the forks and use in place of a new washer.



9.3 Pedal Sensor Magnet doesn't fit my bike

If there isn't enough space, remove the plastic hinge part and mount the pedal sensor directly to the frame using the cable ties provided.

9.4 Motor Starts and Stops when using Pedal Assist

If the pedal assist power is intermittent, check if the PAS magnet disk is aligned. Re-align it and adjust the sensor so that it is closer to the magnet disk.

9.5 Quick Connect Handlebar Mount Placement

If the Quick Connect Handlebar Mount moves up when removing the Power Pack:

Check the bolts are tightened.
Fit the rubber handlebar spacers directly underneath the handlebar mount arms, check that they have not moved to the side. You may be using spacers that are either too big or too small.

Alternatively if the quick connect handle bar mount moves down:

Check the bolts are tightened.
Fit the rubber handlebar spacers directly underneath the handlebar mount arms, check that they have not moved to the side. You may be using spacers that are either too big or too small..

9.6 Power Pack is difficult to remove from bike

At the beginning of use there is a break-in period where the Power Pack will feel stiff to remove from the Quick Connect Handlebar Mount.

To make it easier to remove here are some tips:

Make sure you are holding the button down firmly.
Instead of pulling directly up on the handle, rock the Power Pack side to side. This will make the removal a lot easier.
Pull the Power Pack in one quick motion, instead of pulling slowly.
Support and pull the Power Pack from the bottom instead of using the handle.

10

Maintenance

Interval	Swytch Kit
Every Ride	- Check battery charge level - Re-charge after every ride - If installed, test the brake sensors operate normally
Monthly 20 hours 500 miles	- Clean handlebar Blades and Power Pack Clip connectors - Top up battery charge if storing over winter - Check motor wheel nuts are secure - Check pedal sensor is aligned
6 months 100 hours 3000 miles	- If storing for 6 months without riding charge power pack monthly. - Check motor wheel spoke tension - Check motor and sensor connectors - Check throttle and PAS function normally
12 months 200 hours 6000 miles	- If storing for 12 months without riding charge power pack monthly. - Check Motor wheel turns smoothly and quietly - Check Power Pack Bag for any damage - Check Quick Connect Handlebar Mount for any damage

If you have any further questions, queries or problems that are not covered in this guide, please do contact us at: **link** and a member of our Customer Service Team will be happy to help!