

USER MANUAL

POWERSHIFT HUB

CLASSIFIED

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1. Introduction

1.1 Symbols used

This user manual uses the following symbols:



TIP

Provides the user with suggestions and advice to perform a procedure more easily or conveniently.



NOTE

A general comment which may offer an increased economic utility.



ENVIRONMENT

Guidelines that must be followed when using hazardous substances and when recycling products and materials.



CAUTION

Indicates a hazardous situation which, if the safety instructions are not followed, may lead to minor or moderate injury and/or damage to the product or the environment.



WARNING

*Indicates a hazardous situation which, if the safety instructions are not followed, **may** lead to serious injury or death, and/or serious damage to the product or the environment.*



DANGER

*Indicates a hazardous situation which, if the safety instructions are not followed, **will** lead to serious injury or death.*

1.2 Intended use

The product is a wirelessly shiftable 2 speed Powershift hub which can be integrated in road and gravel bikes.

The product may only be used on a bicycle:

- with compatible chains. For optimal shifting performance, the following chains are recommended: Shimano CN-HG601-11, CN-HG701-11, CN-HG901-11, KMC X11, DLC11. Other chains for 11 speed cassettes may affect the shifting quality.
- with a front chainring with at least 40 teeth.
- combined with handlebars equipped with a hole for wiring near to the end. For example: Pro Vibe alloy and Pro Vibe carbon
- on a bicycle with an ERD (effective rim diameter) between 548 - 594 mm.
- with center lock flat mount disc brakes
- without electric power assistance

- with a frame having an installation width of 142 mm for the rear wheel
- in ambient temperatures (while in use) between -15 °C and +50 °C
- with an electronic shifter/interface equipped with a 2,5 mm audio jack, compatible with the Classified handlebar unit
- with a frame equipped with integrated torque support or using the external torque support (which has been released for the specific frame)

1.3 Prohibited use

It is prohibited to use the product for any other purpose than those indicated in this manual, the safety indications or other safety documents accompanying the product.

Any modification to the product may affect its safety and warranty!

It is prohibited to use any other combinations than those described in the intended use.

It is prohibited to drill holes in the handlebar for the wiring. This will void the warranty and may lead to injuries or death.

It is prohibited to use the product in conjunction with 2 front chainrings.

It is prohibited to open the smart thru axle or the Powershift hub for any purpose not described in the maintenance section.

It is prohibited to install parts on the product which have not been approved by Classified Cycling. These may:

- affect or prevent the operation of the product,
- endanger the safety of the user or other people,
- shorten the life of the product,
- void the compliance with the CE directives.

1.4 Type designation

The various Classified components are labelled with a serial number. The handlebar unit and the Powershift hub are also marked with a QR code. A registration card is included with a copy of the components' serial numbers. Scan the QR code on the registration card in order to register the component.

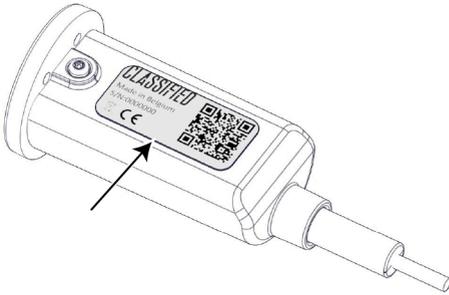


Fig. 1: Handlebar unit label

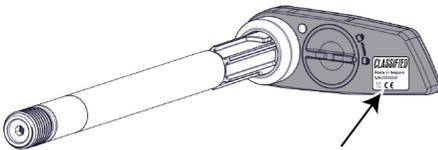


Fig. 2: Smart thru axle label - ITS

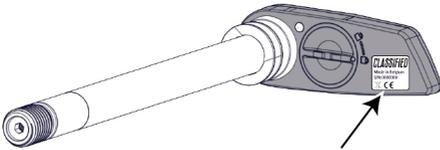


Fig. 3: Smart thru axle label - ETS

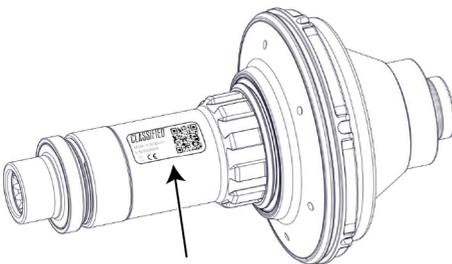


Fig. 4: Powershift hub label - ITS

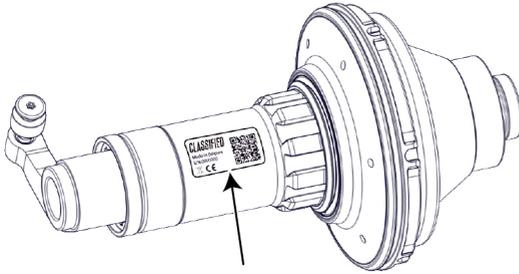


Fig. 5: Powershift hub label - ETS

2. Description

2.1 ITS and ETS

For each internal hub gear, the torque must be supported on the frame. This can be done in two ways.

ITS (Internal Torque Support)

In the ITS version of the hub and thru axle, the frame must have a specific Classified insert on the rear brake side. This insert is only used on bicycles which the manufacturer has supplied with the Classified Powershift hub. The hub supports the torque via the thru axle in the Classified insert.

ETS (External Torque Support)

In ETS version of the hub and thru axle, the torque is transmitted to the frame via a Classified bracket compatible with cycles with flat mount brake discs. The bracket is mounted on the Powershift hub and supports the torque on the back bolt of the brake caliper.

2.2 Part names

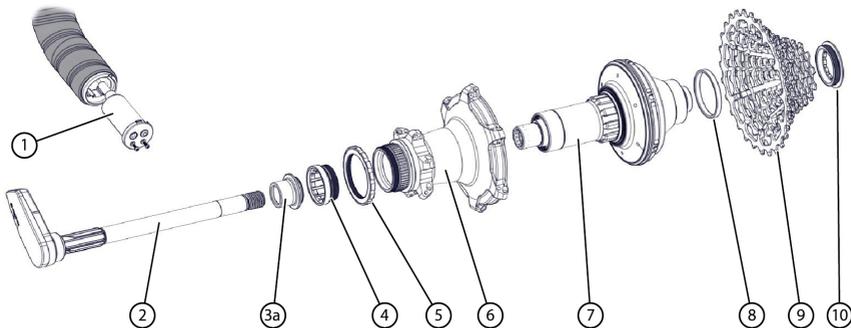


Fig. 6: ITS Parts

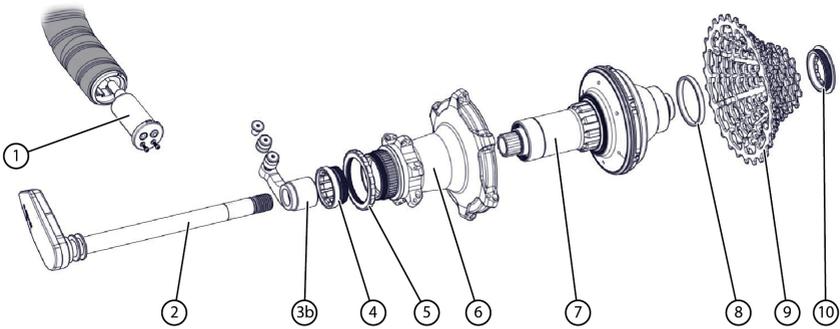


Fig. 7: ETS Parts

No.	Part	Explanation
1	Handlebar unit	The wireless handlebar unit is installed into the left-hand side of the handlebar and is controlled by a shifter or satellite buttons compatible with Classified. The handlebar unit is powered by a battery.
2	Smart thru axle	The smart thru axle receives the wireless shift signal from the handlebar unit and shifts the Powershift hub through contactless energy transfer. The smart thru axle is equipped with a rechargeable battery.
3a	Brake-side end cap	This end cap seals the Powershift hub and interfaces to the inside of the frame.
3b	End cap with torque support on brake side	This end cap seals the Powershift hub and provides torque support on the frame.
4	Hubshell lock ring	The hubshell lock ring ensures that the hubshell is fixed to the Powershift hub.
5	Center lock securing ring	The center lock securing ring fixes the center lock brake disc to the Classified hubshell

No.	Part	Explanation
6	Hubshell	The hubshell is attached to the rim by spokes. You can equip multiple rims with a Classified hubshell and use them in combination with a single Classified Powershift hub.
7	Powershift hub	The Powershift hub contains the shifting mechanism and is controlled electronically. The Powershift hub does not contain a battery and gets its shifting power from the smart thru axle.
8	Cassette center washer	This center washer ensures that the cassette seamlessly connects to the Powershift hub.
9	Cassette	The Classified cassette is mounted to the Powershift hub.
10	Cassette lock ring	The cassette lock ring fixes the cassette to the Powershift hub.

3. Principles of operation

3.1 The operation of the Classified Powershift hub

Through a compatible shifter or satellite button, a shifting command is sent to the handlebar unit. The handlebar unit wirelessly transmits the shifting command to the smart thru axle using Bluetooth. The smart thru axle transfers the power needed for shifting and the shifting command to the Powershift hub. The shifting takes place internally within the Powershift hub.

The smart thru axle transmits your current gear ratio and battery status to your GPS bike computer (not included) using ANT+. Consult the handbook of your bike computer for more information.

The Powershift hub has two gears:

- A 1:1 ratio where the speed of the cassette is equal to the speed of the wheel. This is similar to the large chainring on a traditional 2x.
- A 0.686 ratio (reduction ratio), where the speed of the wheel is lower than the speed of the cassette. This is similar to the small chainring on a traditional 2x.

Shifting from 1:1 to the reduction ratio is like shifting from the large to the small chainring on a traditional 2x.

Large front chainring	Virtual small front chainring (Classified) *
52	36
50	34
48	33
46	32
44	30
42	29
40	27

*: These values are rounded.

4. Safety

4.1 Safety precautions

**CAUTION**

Read the user manual before using the product! Retain this user manual for future reference. Also retain the accessories and tools included for future use.

**WARNING**

Never open or disassemble the Classified Powershift hub. Damage to the Classified Powershift hub and serious injuries may occur. Furthermore, the warranty will be voided.

**WARNING**

As well as the intended and prohibited use, the maintenance requirements must be complied with. Failure to comply correctly may result in the Classified Powershift hub or the chain breaking. This may cause serious injuries.

**WARNING**

The Classified Powershift hub can withstand riding in rainy weather conditions. However, do not submerge the Classified Powershift hub in water and do not clean it using a high pressure cleaner. Damage to the Classified Powershift hub may occur, leading to serious injuries as a result of defective operation.

4.2 Hazardous substances

The product contains:

- a replaceable button cell battery CR1632
- a rechargeable lithium ion battery, capacity 320 mAh

The lubricant used to lubricate the chain, and hence indirectly lubricating the cassette, is a hazardous substance. Carefully read the lubricant's safety instructions.

5. Storage and transport

5.1 Storing and transporting the Classified Powershift hub

If you are not going to use the Classified Powershift hub for an extended period of time and want to store it for future use, recharge the battery of the smart thru axle once every 3 months.

The temperature for storage (when not in use) or transport is minimum -15 °C and maximum 60 °C.

After extended transport, it is recommended to recharge the battery of the smart thru axle. Vibrations during transport activate the smart thru axle for a longer period.

6. Assembly and installation

6.1 What is included?

Check that the following items are included. If not, please contact your distributor.

- The Classified Powershift hub, consisting of a handlebar unit, smart thru axle, hubshell and Powershift hub + cassette
- The user manual
- USB charging cable 1.5 m
- Torx T5 screwdriver
- Registration card



NOTE

Check that all parts are undamaged. Please contact Classified Cycling if that is not the case.

6.2 Replacing a wheel with a Classified Powershift hub

Tools required:

- Torque wrench
- Lock ring tool
- Chain whip (Only if you also want to change the cassette)

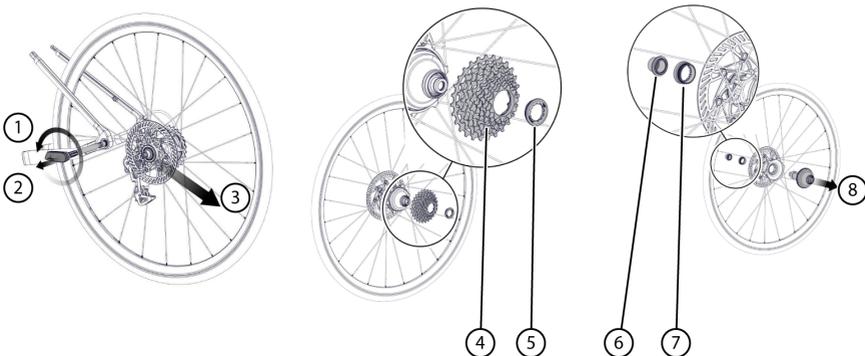


Fig. 8: Replacing a wheel

1. Shift the Powershift hub to the 1:1 ratio and shift the cassette to the smallest sprocket using the rear derailleur.

2. Remove the wheel from the bicycle as you would remove any traditional wheel by removing the Smart thru axle.
 - a) Declutch the rear derailleur by setting the clutch to Off.
 - b) Turn the smart thru axle anti-clockwise (1).
 - c) Pull the smart thru axle out of the wheel (2).
 - d) Push the rear derailleur backwards and carefully remove the wheel from the bicycle (3).
3. If the cassette also needs changing, go to the next step. If the cassette does not need changing, go to step 6.
4. Unscrew the cassette lock ring (5) using the lock ring tool.

If the gear is not set to the 1:1 ratio, you will need to hold the cassette back using a chain whip.
5. Remove the cassette (4) from the Powershift hub.
6. Remove the end cap (6) on the side of the brake disc.
7. Unscrew the hubshell lock ring (7) using the lock ring tool.
8. Pull the Powershift hub (8) out of the hubshell.
9. Acquire a new wheel with an installed and certified Classified hubshell.
10. Place the Powershift hub into the hubshell and complete the installation in the reverse order of removal. Use the following tightening torques:
 - Tightening torque of cassette locking ring: minimum 30 Nm and maximum 40 Nm. (You only need to do this if the cassette has also been changed).
 - Hubshell lock ring tightening torque: minimum 30 Nm and maximum 40 Nm.
11. Place the end cap, with or without torque support, back on the disc brake side.

For ETS only: rotate the end cap with torque support clockwise up to the underside of the back bolt on the brake caliper.
12. Carefully install the wheel in the bicycle.
13. Install the smart thru axle, ensuring that the thru axle lever points towards the handlebar unit.

If required, loosen the smart thru axle again and loosen the hex screw (9) on the end of the smart thru axle. Now the stud (10) can be removed from the axle and turned. Retighten the smart thru

axle and check that the thru axle lever points towards the handlebar unit. Repeat this action until the thru axle lever points in the right direction and the smart thru axle is tight.

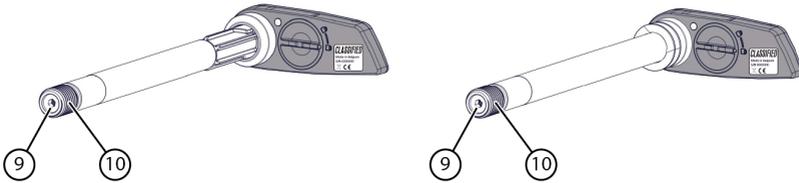


Fig. 9: Thru axle lever position adjustment

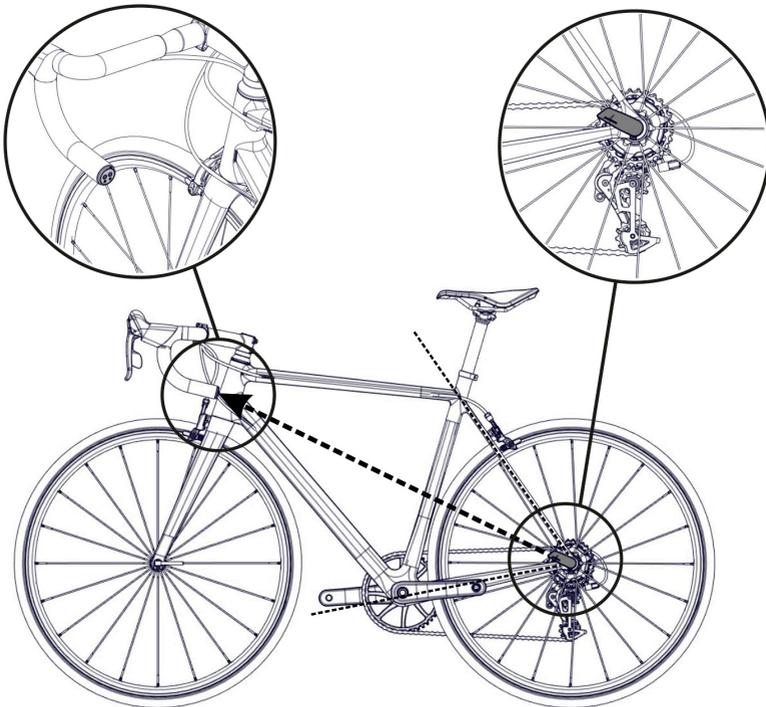


Fig. 10: Thru axle lever position - ITS

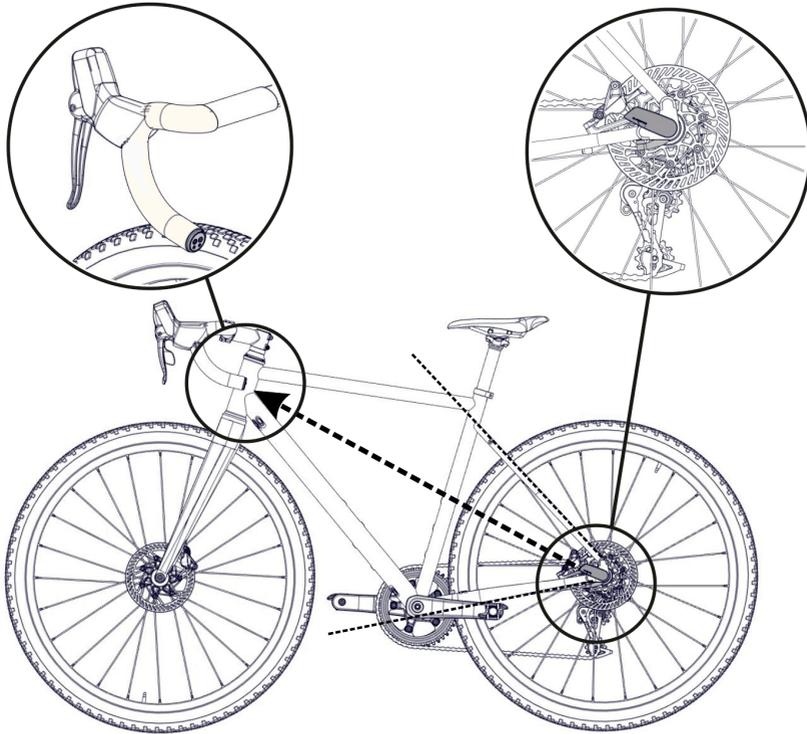


Fig. 11: Thru axle lever position - ETS

14. ETS only: Place the bracket against the frame.

6.3 Bluetooth pairing

On delivery, the handlebar unit is already paired correctly to the smart thru axle through Bluetooth. If they become unpaired or you buy an additional Classified Powershift hub that you want to operate using the same handlebar unit, you will have to create a new Bluetooth connection.



NOTE

Only Classified modules can be paired through Bluetooth. Pairing with telephones, tablets or other electronic devices is not possible.

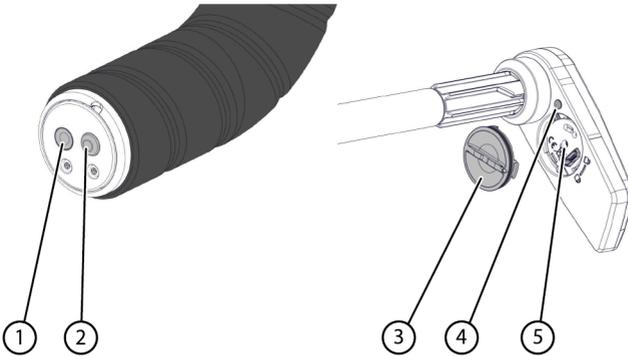


Fig. 12: Buttons and LEDs

1. Remove the smart thru axle.
2. Turn the bayonet fixing (3) counter-clockwise past the release sign and the bayonet fixing is automatically released.
3. Press and hold the button (5) of the smart thru axle for at least 5 seconds using the supplied Torx T5 screwdriver until the LED (4) starts to blink.
4. Press and hold the button (2) of the handlebar unit for at least 5 seconds until the LED (1) starts to blink.
When both LEDs go off at the same time, the Bluetooth connection has been established.
5. Check the connection by shifting the Classified hub using the shifter or the satellite buttons. The LED of the handlebar unit and the LED of the smart thru axle both briefly illuminate when shifting.

7. Initial use

7.1 Initial use

Before using the Classified Powershift hub, it is recommended that you check the following items:

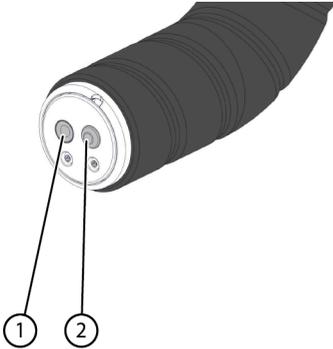


Fig. 13: Button and LED on the handlebar unit

1. Check the handlebar unit. Press and hold the button (2) less than 2 seconds in order to check the battery status. If the LED (1) blinks red or does not blink, the battery must be replaced. Please refer to Replacing the handlebar unit's battery on page 21.
2. Recharge the battery of the smart thru axle. Please refer to Recharging the battery of the smart thru axle on page 22.
3. Wake up the handlebar unit up by shifting once and then waiting 3 seconds. The vibration-sensitive smart thru axle will start up automatically when the bicycle moves.

8. Operation

8.1 Operation

Please refer to the bicycle manufacturer's manual or the manual for the Classified compatible shifter or satellite button.

9. Maintenance

9.1 Maintenance schedule



NOTE

The indicated frequency depends on the use of the Classified Powershift hub and the riding conditions.

Action	Frequency	Execution
Inspection	Before riding	Please refer to Checking the Powershift hub on page 20
Cleaning	After riding	Please refer to Cleaning the Classified Powershift hub on page 23
Lubrication	After riding	Lubricate the chain

9.2 Checking the Powershift hub

Perform this check each time before you ride the bicycle!



WARNING

If you notice any issues, please contact Classified.

1. Check the status of the batteries. Please refer to Checking the battery status on page 20.
2. Check the Bluetooth connection. Please refer to Bluetooth pairing on page 16.

9.3 Tools required

- Lock ring tool
- Torx T5 screwdriver
- Flat-head screwdriver
- Torque wrench
- Chain whip

9.4 Checking the battery status

The handlebar unit and the smart thru axle are both equipped with an LED. The colour of the LED also indicates the battery status. You can check the colour of the LEDs while shifting. However, for safety it is recommended to get off the bicycle and perform the following procedure.

Please refer to figure Fig. 12: Buttons and LEDs on page 17.

Press and hold the button on the handlebar unit or the smart thru axle for less than 2 seconds and observe the colour of the LED:

LED colour	Battery status
Green	The battery status is OK
Blinking red	Depending on which LED is blinking red: <ul style="list-style-type: none"> • Handlebar unit LED: replace the handlebar unit's battery. • Smart thru axle LED: recharge the smart electronic thru axle's battery.

9.5 Replacing the handlebar unit's battery

You can replace the handlebar unit's button cell battery without removing the tape from your handlebar.

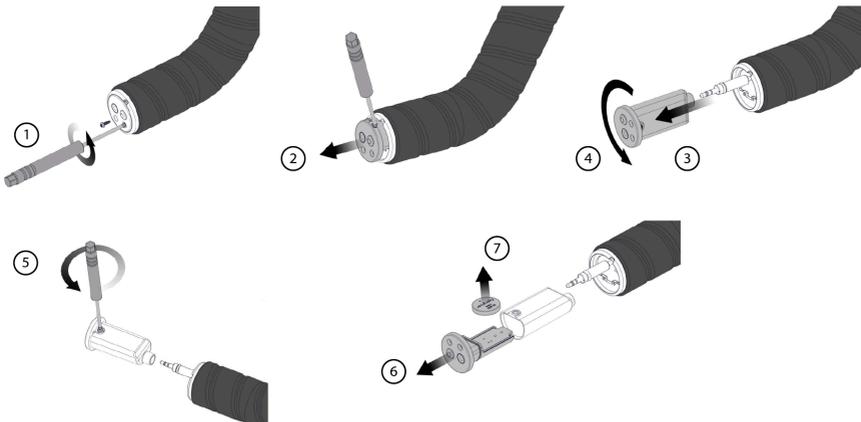


Fig. 14: Replacing the handlebar unit's battery

1. Undo the two Torx T5 bolts on the handlebar unit using the Torx T5 screwdriver supplied.

2. Pry the handlebar unit from the handlebar using the Torx T5 screwdriver.
If required, you can lightly squeeze the edges of the holder in the handlebar to facilitate removing the handlebar unit.
3. Fully remove the handlebar unit from the handlebar and disconnect the handlebar unit's connector.
4. Turn the handlebar unit over.
5. Disconnect the housing using the Torx T5 screwdriver.
6. Slide the battery holder out of the housing.
7. Remove the CR1632 button cell battery while fixating the electronics in it's holder.
8. Install the new CR1632 button cell battery.
Place the battery correctly. Observe the + and - markings.
9. Reinstall all parts in the reverse order of removal. Pay special attention to the following:
 - Ensure that the rubber seal between the battery holder and the housing is installed correctly in the groove.
 - Install the connector fully up against the handlebar unit. Before continuing the installation, check that the LED blinks both when shifting up and when shifting down.



NOTE

Do not dispose of the battery in general waste! Take the discharged battery to an authorised collection point.

9.6 Recharging the battery of the smart thru axle

The battery in the smart thru axle cannot be replaced, but it can be recharged. You can use a fully charged battery for 3 to 6 months, depending on usage. The more you ride and the more you shift, the sooner the battery will need to be recharged. If the Classified Powershift hub is exposed to vibrations during extended transport, the battery will discharge more quickly.

Recharging takes about 4 hours at room temperature.



CAUTION

NEVER recharge the battery of the smart thru axle while riding. If you do so, the smart thru axle will no longer be dust and water tight.

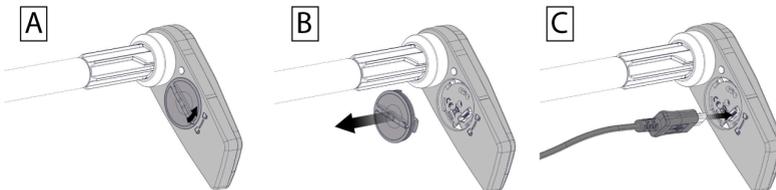


Fig. 15: Recharging the battery of the smart thru axle

1. Remove the smart thru axle.
2. Turn the bayonet fixing counter-clockwise past the release sign (A).
3. Remove the bayonet lock from the thru axle lever. (B)
4. Connect the USB cable. (C)
Only use the supplied USB cable.
5. Connect the other end of the cable to a 5V USB charger.
The LED will blink green while charging and remain steady green when the battery is fully charged.
6. After fully charging the battery, remove the cable and reinstall the bayonet lock correctly.

**WARNING**

Not reinstalling the bayonet lock correctly will result in damage to the smart thru axle from moisture and dust.

9.7 Cleaning the Classified Powershift hub

Do not use scouring pads, abrasive cleaners, aggressive solutions (such as thinners) or alkaline or acidic solvents (such as rust removers).

Regular cleaning will extend the life of the Classified Powershift hub!

Clean the Classified Powershift hub using a mild soap solution and a NON-powerful water jet.

**CAUTION**

Do NOT use a pressure washer or steam washer!

9.8 Troubleshooting

Issue	Cause	Solution
The LED on the handlebar unit does not blink after a shifting command.	The handlebar unit's battery is flat.	Check the battery status – please refer to Checking the battery status on page 20. If required, replace the handlebar unit's battery – please refer to Replacing the handlebar unit's battery on page 21.
The LED on the handlebar unit blinks red after a shifting command.	The handlebar unit's battery is flat.	Replace the handlebar unit's battery – please refer to Replacing the handlebar unit's battery on page 21.

Issue	Cause	Solution
The LED on the handlebar unit only blinks when shifting up, but not when shifting down, or vice versa.	The connector of the shifter or the satellite buttons is installed incorrectly into the handlebar unit.	Remove the handlebar unit from the handlebar and make sure the connector is installed into the handlebar unit up to the stop.
The LED of the smart thru axle does not blink after a shifting command.	The battery of the smart thru axle is flat.	Recharge the battery of the smart thru axle – please refer to Recharging the battery of the smart thru axle on page 22.
	The handlebar unit and the smart thru axle are not paired through Bluetooth.	Pair the handlebar unit and the smart thru axle through Bluetooth – please refer to Bluetooth pairing on page 16.
The LED of the smart thru axle blinks red after a shifting command.	The battery of the smart thru axle is low.	Recharge the battery of the smart thru axle – please refer to Recharging the battery of the smart thru axle on page 22.
The LED of the smart thru axle shows steady green after a shifting command.	There is an error in the wireless energy transfer of the smart thru axle.	<p>Unscrew the smart thru axle from the bicycle until the green LED of the smart thru axle goes off. Then reinstall the smart thru axle.</p> <p>Important: never issue a shifting command while installing or removing the smart thru axle.</p>
Play on the Classified Powershift hub	The smart thru axle is not sufficiently tightened.	Screw the smart thru axle finger-tight into the frame.
	The hubshell lock ring is not sufficiently tightened.	Ensure that the hubshell lock ring has been tightened to 35 Nm.
	One of the end caps is not installed, or installed incorrectly.	Ensure that both end caps (brake side and cassette side) have been installed on the Classified Powershift hub.
	There is play on the bearings of the Classified Powershift hub.	Contact Classified Cycling or a registered Classified dealer.

Issue	Cause	Solution
The Classified Powershift hub will not turn when riding with stationary pedals	The hubshell center washer is not installed, or installed incorrectly.	Remove the Classified Powershift hub from the wheel and ensure that the hubshell center washer has been installed correctly.
The wheel is jammed in the frame and will not turn anymore.	The cassette-side end cap has not been installed.	Install the cassette-side end cap.
	The chain is jammed between the cassette and the frame.	Remove the wheel and reinstall the wheel after placing the chain back around the cassette.
There is play on the cassette or the cassette wobbles.	The plastic center washer has not been installed in the cassette.	Remove the cassette and ensure that the plastic center washer is installed in the cassette (black plastic washer on the inside of the smallest cassette sprocket). If you have previously swapped out the cassette, also ensure that only one cassette center washer was installed.
	The cassette lock ring is not sufficiently tightened.	Ensure that the cassette lock ring is tightened to 40 Nm.
The cassette does not shift well.	The rear derailleur has not been adjusted correctly.	Consult the rear derailleur's manual for adjusting the derailleur to the cassette. When changing the cassette size (e.g. from a 11-34 to a 11-27 cassette), it is important to adjust the derailleur's "B screw" correctly.
	An incompatible chain has been installed.	Please refer to classified-cycling.cc for the compatible chain types
	The chain is worn out.	Please refer to classified-cycling.cc for the compatible chain types and install a new chain.

Issue	Cause	Solution
	The cassette is worn out.	Spare parts are available through the website. Please refer to classified-cycling.cc
The Powershift hub produces an abnormal or continuous noise.		Contact Classified Cycling or a registered Classified dealer.
The bayonet lock is no longer installed on the smart thru axle.		Spare parts are available through the website. Please refer to classified-cycling.cc . Using the bicycle without the bayonet lock on the smart thru axle is not allowed and may cause permanent damage to the system.



NOTE

For the most recent list of frequently asked questions, please refer to classified-cycling.cc.

10. Recycling

10.1 Recycling the Classified Powershift hub

Remove the handlebar unit from the handlebar and disassemble the various components: smart thru axle, hubshell, Powershift hub and cassette.

Do NOT dispose of the products in your general household waste! Comply with the current local legal requirements and contact your local authorities in case of any doubt.

The smart thru axle contains a non-replaceable rechargeable battery. This battery may only be removed by a qualified professional.

The handlebar unit contains a replaceable rechargeable battery. Remove this battery and only submit the discharged battery to an authorised collection point.



11. Appendices

11.1 Warranty



NOTE

The warranty is valid only for registered products and providing the service suggestions are followed.

In case of prohibited use, the warranty will be void. Please refer to Prohibited use on page 4.

Register by scanning the components' QR codes or visit classified-cycling.cc/registration.

For support, please contact Classified Cycling at support@classified-cycling.cc.

11.2 EC Declaration

Please refer to classified-cycling.cc.

11.3 Spare parts

Please refer to classified-cycling.cc.

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