



# BOSCH BDU3840 Performance Line CX Drive Unit Instruction Manual

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**BOSCH BDU3840 Performance Line CX Drive Unit**

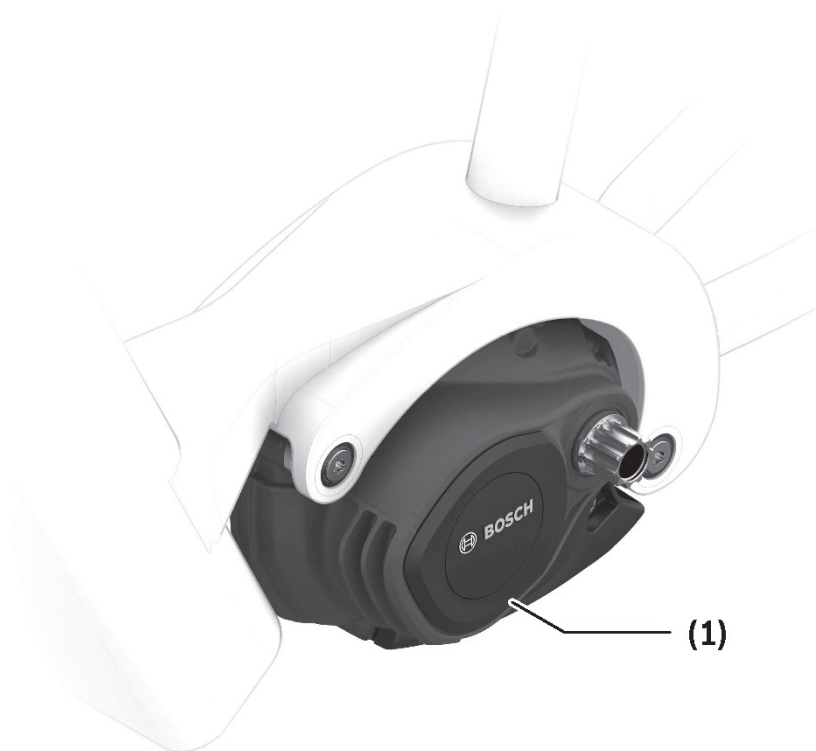


## **INSTRUCTION MANUAL**

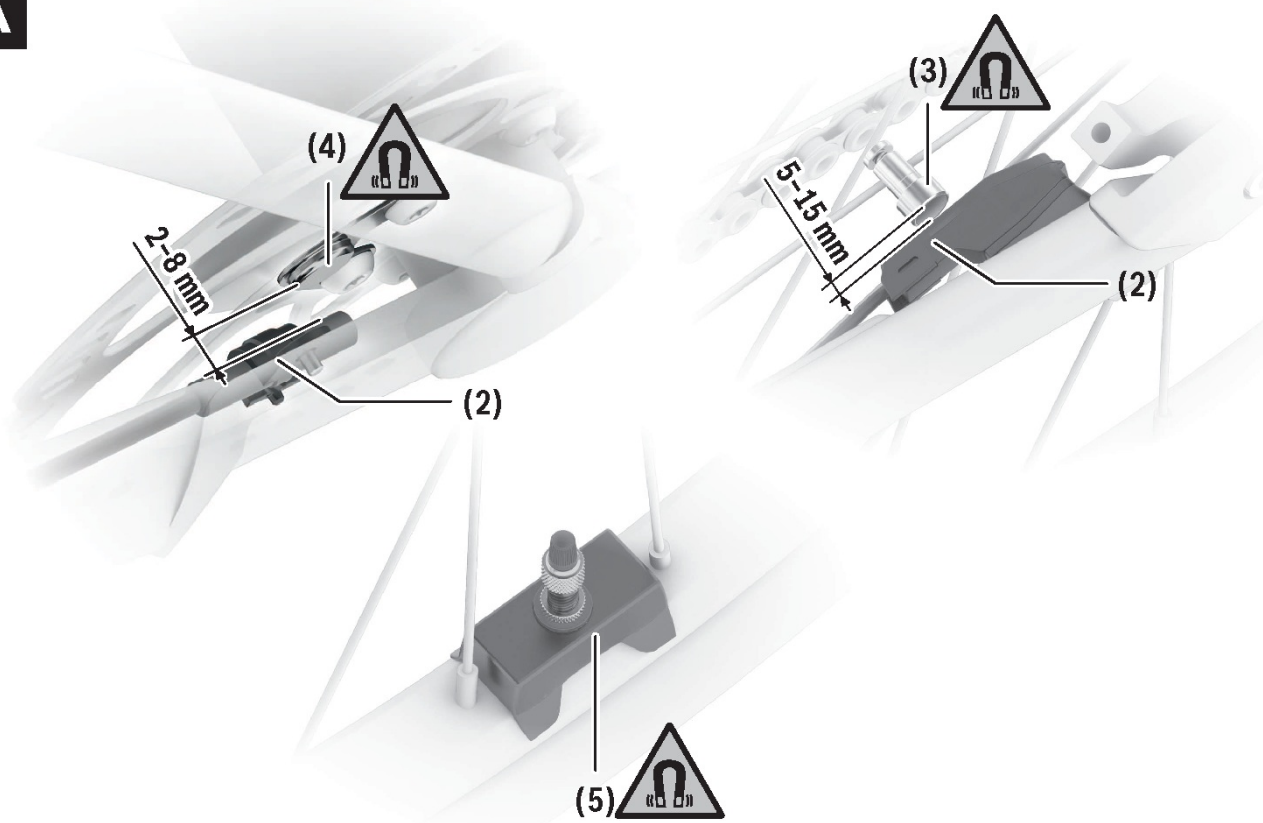
MODEL: BDU3840

The Bosch Performance Line CX Drive Unit (BDU3840) is a powerful and efficient drive system designed for eBikes. It provides a rated power of 250W and a maximum torque of 85Nm, ensuring a smooth and responsive riding experience.

### **Performance Line CX**



A



## Safety instructions



### **Read all the safety and general instructions.**

Failure to observe the safety and general in-structions may result in electric shock, fire and/or serious injury.

### **Save all safety warnings and instructions for future ref-erence.**

The term eBike battery is used in these instructions to mean all original Bosch eBike rechargeable battery packs from the system generation the smart system.

The terms drive and drive unit used in these operating in-structions refer to the original Bosch drive units from the system generation the smart system.

- Read and observe the safety warnings and instruc-tions contained in all the operating instructions for the eBike components and in the operating instruc-tions of your eBike.
- Do not make any alterations of any kind to the drive.
- Do not use any products to increase the performance of the drive. Your actions also constitute an illegal act in the public domain. Moreover, you may consequently en-danger yourself and others, and risk high personal liability costs and potentially even the danger of criminal prosecu-tion in the event of accidents that can be traced back to the manipulation. This also generally reduces the service life of the eBike components. Damage to the drive unit and on the eBike can occur, leading to the loss of guaran-tee and warranty claims on the eBike you have pur-chased.
- Do not open the drive unit. The drive unit must only be repaired with original spare parts and by an author-ised bicycle dealer. This will guarantee that the safety in use of the eBike is maintained.
- Unauthorised opening of the drive unit will render warranty claims null and void.
- Remove the eBike battery from the eBike before be-ginning work (e.g. inspection, repair, assembly, main-tenance, work on the chain, etc.) on the eBike. With built-in eBike batteries, please take particular precau-tions so that the eBike cannot be switched on. There is a risk of injury if the eBike is accidentally activated.
- The eBike can be switched on by pushing the eBike backwards or by turning the pedals backwards.
- You must not remove built-in eBike batteries yourself. Have an authorised bicycle retailer install and remove built-in eBike batteries for you.



On sections of the drive, temperatures > 60 °C may occur in extreme conditions, e.g. when carrying consistently

high loads at low speed when riding up hills or transporting loads.

- After a ride, do not allow your unprotected hands or legs to come into contact with the housing of the drive unit. Under extreme conditions, such as continuously high torques at low travel speeds, or when riding up hills or carrying loads, the housing may reach a very high temperature.

**The temperature that the drive unit housing may reach is influenced by the following factors:**

- Ambient temperature
- Ride profile (route/gradient)
- Ride duration
- Riding modes
- User behaviour (personal effort)
- Total weight (rider, eBike, luggage)
- Motor cover on the drive unit
- Heat dissipation properties of the bicycle frame
- Type of drive unit and type of gear-shifting

Use only original Bosch eBike batteries from the system generation the smart system, which the manufacturer has approved for your eBike. Using other eBike batteries can lead to injuries and pose a fire hazard. Bosch accepts no liability or warranty claims if other eBike batteries are used.



Keep the rim magnet of the system generation the smart system away from implants and other medical devices, e.g. pacemakers or insulin pumps. The magnet generates a field that can impair the function of implants and medical devices.

- Keep the rim magnet away from magnetic data carriers and magnetically sensitive devices. The effect of the magnets may lead to irreversible data losses.
- Observe all national regulations which set out the approved use of eBikes.

**Privacy notice**

When you connect the eBike to the Bosch DiagnosticTool 3 or replace eBike components, technical information about your eBike (e.g. manufacturer, model, bike ID, configuration data) and the eBike usage (e.g. total riding time, energy consumption, temperature) is transferred to Bosch eBike Systems (Robert Bosch GmbH) for the purposes of processing your inquiry, servicing and product improvement. You can find further information about data processing at [www.bosch-ebike.com/privacy-full](http://www.bosch-ebike.com/privacy-full).

Product description and specifications

**Intended use**

The Bosch drive unit of the system generation the smart system is intended exclusively for driving your eBike and must not be used for any other purpose.

In addition to the functions shown here, changes to software relating to troubleshooting and functional modifications may be introduced at any time.

## Product features

Individual illustrations in these operating instructions may differ slightly from the actual conditions depending on the equipment of your eBike.

The numbering of the components shown refers to the illustrations on the graphics pages at the beginning of the manual.

- (1) Drive unit
- (2) Speed sensor a)
- (3) Spoke magnet
- (4) CenterLock magnet b)
- (5) Rim magnet
- a) different sensor type and installation position is possible
- b) different installation position is possible

## Technical data

Drive unit	Drive Unit Performance Line CX	
Product code		BDU3840
Continuous rated power	W	250
Torque at drive, max.	Nm	85
Rated voltage	V	36
Operating temperature	°C	–5 to +40
Storage temperature	°C	+10 to +40
Protection rating		IP55
Weight, approx.	kg	2.8

The Bosch eBike systems use FreeRTOS (see [www.freertos.org](http://www.freertos.org)).

Bicycle lights <sup>A)</sup>		
Voltage approx.	V	12
Maximum power	W	18

- A) Depends on legal regulations, not possible in all country-specific models via the eBike battery

## Information on the noise emissions of the drive unit

Typically, the A-weighted noise emission level of the drive unit is < 70 dB(A). A key feature of the <eBike Alarm> service is that the drive unit will emit an alarm tone in response to unauthorised movement of the eBike. This alarm tone can exceed a noise emission level of 70 dB(A) and measures 80 dB(A) at a 2 m distance from the drive unit. The alarm tone is only available once the <eBike Alarm> service has been activated and can be deactivated via the app eBike Flow.

## Assembly

Checking the speed sensor (see figure A)

### Speedsensor (slim)

The speed sensor (2) and its CenterLock magnet (4) or spoke magnet (3) are mounted ex works in such a manner that the magnet, after a turn of the wheel, moves past the speed sensor with a clearance of at least 2 mm, yet no more than 15 mm.

If any structural changes are made, the correct distance between the magnet and the sensor must be complied with (see figure A).

Note: Make sure you do not damage the sensor or the sensor holder when fitting or removing the rear wheel. When changing a wheel, make sure that the sensor cable is routed so that it is not under tension and has no kinks. The CenterLock magnet (4) can only be removed and reinserted up to 5 times.

### Rim magnet

Note: The rim magnet's alignment with the rim must not be changed (see figure A).

If a rim magnet is installed, no sensor is required to detect a wheel turn. The drive unit itself detects when the magnet is close to it and calculates the speed and any other data required from the frequency of the emergence of the magnet field.

Since the drive unit is sensitive to magnetic fields, avoid other magnetic fields in the vicinity of the drive unit (e.g. magnetic clipless pedals, magnetic cadence sensors, magnetic or magnetised tools, etc.) in order to prevent disruption to the drive unit.

## Operation

A control unit from the system generation the smart system is required for the starting operation of the eBike. Please observe the operating instructions of the control unit and, if necessary, additional components from the system generation the smart system.

Notes on Cycling with Your eBike

### When does the drive work?

The drive assists your cycling only when you are pedalling. If you do not pedal, the assistance will not work. The drive power always depends on the pedalling force and cadence you apply.

If you apply less force or a lower cadence, you will receive less assistance than if you apply a lot of force or a higher cadence. This applies irrespective of the riding mode.

The drive automatically switches off at speeds over 25 km/h. When the speed falls below 25 km/h, the drive automatically becomes available again.

An exception applies to the walk assistance function, in which the eBike can be pushed at low speed without ped-

alling. The pedals may rotate when the walk assistance is in use.

You can also use the eBike as a normal bicycle without assistance at any time, either by switching off the eBike or by setting the riding mode to OFF. The same applies when the eBike battery is drained.

**Interaction between the Drive Unit and Gear-shifting** The gear shifting should be used with an eBike in the same way as with a normal bicycle (observe the operating instructions of your eBike on this point).

Irrespective of the type of gear shifting, it is advisable that you briefly reduce the pressure on the pedals when changing gear. This will aid gear shifting and reduce wear on the powertrain.

By selecting the correct gear, you can increase your speed and range while applying the same amount of force.

### **Gaining initial experience**

We recommend that you gain initial experience with the eBike away from busy roads.

Test the various riding modes. Start in a riding mode with a small amount of assistance. As soon as you feel confident, you can ride your eBike in traffic like any other bicycle. Test the range of your eBike in different conditions before planning longer and more demanding trips.

### **Influences on range**

It is not possible to calculate the range accurately before and during a trip because the range is affected by a number of factors.

Enter the factors in the Range Assistant in order to better assess the effects on the range.

Scan the code provided to open the Range Assistant.



### **Taking care of your eBike**

Please observe the operating and storage temperatures of the eBike components. Protect the drive unit, on-board computer and eBike battery against extreme temperatures (e.g. from intense sunlight without adequate ventilation). The components (especially the eBike battery) can become damaged through extreme temperatures.

### **Maintenance and servicing**

#### **Maintenance and cleaning**

When changing the bulbs, ensure that they are compatible with the Bosch eBike system of the generation the smart system (ask your bicycle dealer) and are suitable for the specified voltage. Bulbs must only be replaced with bulbs of the same voltage.

All components fitted to the drive unit and all other components of the drive (e.g. chainring, chainring receptacle, pedals, cranks) must only be replaced with identical components or components that have been specifically approved by the manufacturer for your eBike. This will protect the drive unit from overloading and becoming damaged.

Keep the drive unit clean and avoid contact with aggressive substances and fuels, e.g. diesel. Take care when cleaning the drive unit.

Do not immerse any components, including the drive unit, in water or clean them with pressurised water.



Have your eBike checked by an expert at least once a year (including mechanical parts, up-to-dateness of system soft-ware).

Please have your eBike serviced and repaired by an author-ised bicycle dealer.

After-sales service and advice on using products

If you have any questions about the eBike and its compon-ents, contact an authorised bicycle dealer.

For contact details of authorised bike dealerships, please visit [www.bosch-ebike.com](http://www.bosch-ebike.com).



Further information on the eBike components and their functions can be found in the Bosch eBike Help Center.

### **Disposal and substances in products**

You can find information about substances in products at the following link:

[www.bosch-ebike.com/en/material-compliance](http://www.bosch-ebike.com/en/material-compliance).

Do not dispose of eBikes and their components with house-hold waste.

An in-store return is possible, provided the retailer voluntar-ily offers a return or is legally obligated to do so. Refer to the national regulations in this case.



The drive unit, on-board computer incl. operat-ing unit, eBike battery, speed sensor, ac-cessories and packaging should be disposed of in an environmentally correct manner.

Check that your personal data has been deleted from the device.

Batteries that can be removed from the power tool without destruction must be removed before disposal itself and sor-ted for separate battery collection.



In accordance with Directive 2012/19/EU and Directive 2006/66/EC respectively, elec-tronic devices that are no longer usable and de-fective/drained batteries must be collected separately and recycled in an environmentally friendly manner.

Electrical and electronic equipment are collected separately for pre-sorting by type and helps to ensure that raw materials are treated and recovered properly, thereby protecting people and the environment.



**Subject to change without notice.**

### **Specifications:**

- Drive Unit: Performance Line CX
- Product Code: BDU3840
- Rated Power: 250W
- Max Drive Torque: 85Nm
- Operating Voltage: 36V
- Operating Temperature: Standard
- Storage Temperature: Standard
- Protection Class: IP55
- Weight: 2.8kg
- Bosch eBike Systems uses FreeRTOS
- Bicycle Lighting:
  - Operating Voltage: 12V
  - Maximum Power: 18W

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### **Frequently Asked Questions (FAQ):**

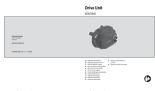
**Q: Can I repair the drive unit myself?**

**A:** No, the drive unit should only be repaired by authorized bicycle dealers using original spare parts to maintain safety and warranty.

**Q: What precautions should I take when working on the eBike battery?**

**A:** Always remove the battery before any work and ensure it cannot be accidentally activated to prevent injury.

### **Documents / Resources**

	<p><b><a href="#">BOSCH BDU3840 Performance Line CX Drive Unit</a></b> [pdf] Instruction Manual BDU3840 Performance Line CX Drive Unit, BDU3840, Performance Line CX Drive Unit, Line C X Drive Unit, Drive Unit</p>
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## References

-  [FreeRTOS™ - FreeRTOS™](#)
- [User Manual](#)

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