



# ORIGINAL INSTRUCTIONS

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***GHOST***



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PowerTube 400/500/625
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6. Drive Units Active Line / Active Line Plus /  
Performance Line
7. Drive Units Performance Line / Cargo Line

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# Intuvia

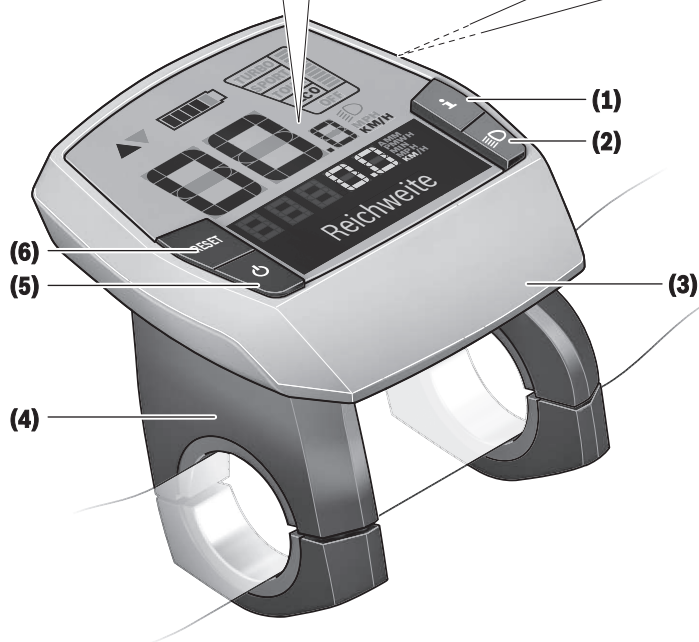
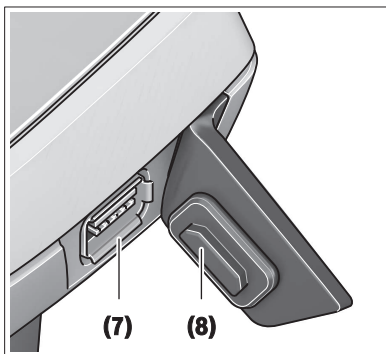
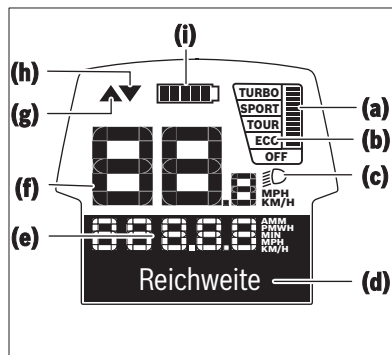
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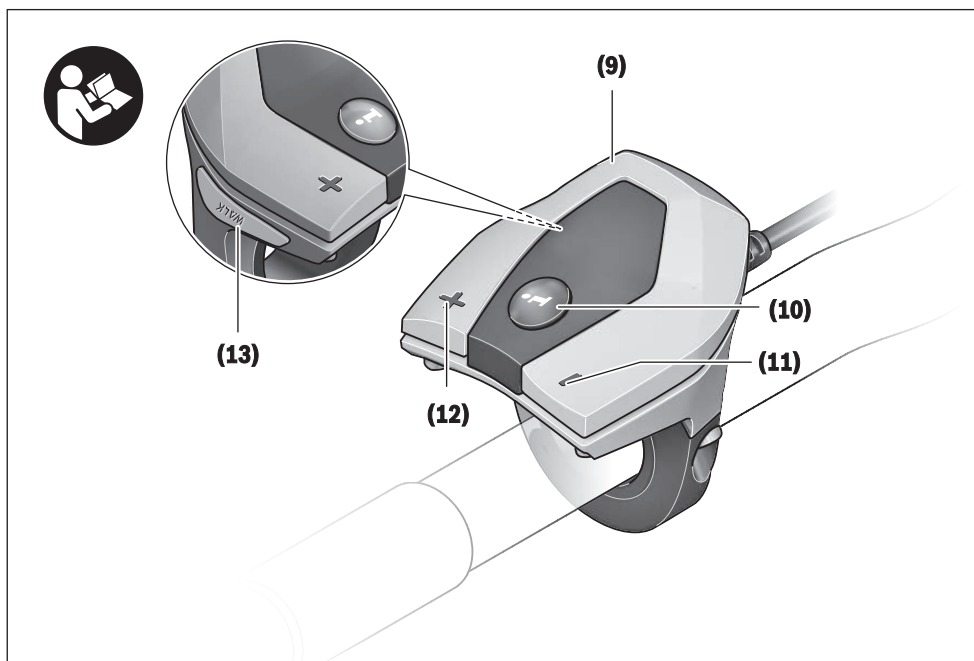
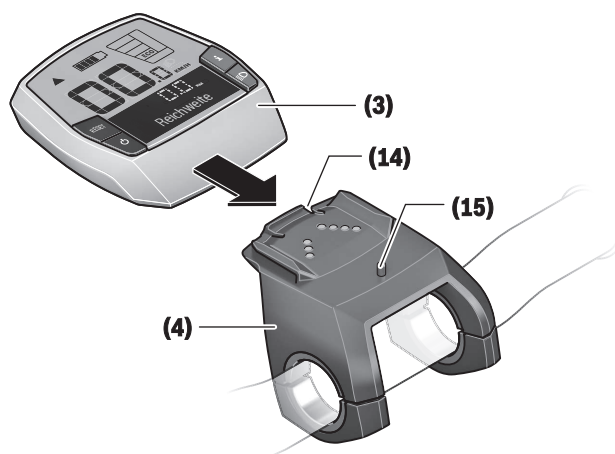
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***GHOST***








**A**




## Safety instructions



**Read all the safety information and instructions.** Failure to observe the safety information and follow instructions may result in electric shock, fire and/or serious injury.

**Save all safety warnings and instructions for future reference.**

The term **battery** is used in these instructions to mean all original Bosch eBike rechargeable battery packs.

- ▶ **Do not allow yourself to be distracted by the on-board computer's display.** If you do not focus exclusively on the traffic, you risk being involved in an accident. If you want to make entries in your on-board computer other than switching the assistance level, stop and enter the appropriate data.
- ▶ **Do not use the on-board computer as a handle.** Lifting the eBike up by the on-board computer can cause irreparable damage to the on-board computer.
- ▶ **Read and observe the safety warnings and directions contained in all the eBike system operating instructions and in the operating instructions of your eBike.**

## Product description and specifications

### Intended use

The **Intuvia** on-board computer is designed to control Bosch eBike systems and display cycling data.

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

### Product features

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

All illustrations of bike parts except for the drive unit, on-board computer (including operating unit), speed sensor and the corresponding holders are a schematic representation and may differ on your eBike.

- (1) Display function button i
- (2) Bike light button
- (3) On-board computer
- (4) Holder for on-board computer
- (5) On/off button for on-board computer
- (6) **RESET** button
- (7) USB port
- (8) Protective cover for the USB port
- (9) Operating unit
- (10) Display function button i on the operating unit
- (11) Decrease assistance level/scroll down button –

- (12) Increase assistance level/scroll up button +
- (13) Push assistance button **WALK**
- (14) Locking mechanism for on-board computer
- (15) Locking screw for on-board computer

USB charging cable (Micro A – Micro B)<sup>A)</sup>

A) Not depicted, available as an accessory

### Display elements of on-board computer

- (a) Drive unit assistance indicator
- (b) Assistance level indicator
- (c) Illumination indicator
- (d) Text indicator
- (e) Value indicator
- (f) Speedometer
- (g) Gear change recommendation: Higher gear
- (h) Gear change recommendation: Lower gear
- (i) Battery charge indicator

### Technical data

On-board computer		Intuvia
Product code		BUI255
Max. USB port charging current	mA	500
USB port charging voltage	V	5
USB charging cable <sup>A)</sup>		1 270 016 360
Operating temperature	°C	–5 to +40
Storage temperature	°C	+10 to +40
Charging temperature	°C	0 to +40
Internal lithium-ion battery	V mAh	3.7 230
Protection rating <sup>B)</sup>		IP 54 (dust and splash-proof)
Weight, approx.	kg	0.15

A) Not included with the product as standard

B) When the USB cover is closed

The Bosch eBike system uses FreeRTOS (see <http://www.freertos.org>).

## Fitting

### Inserting and removing the battery

For inserting and removing the eBike battery in/from the eBike, please read and observe the battery operating instructions.

### Fitting and removing the on-board computer (see figure A)

To **fit** the on-board computer (3), slide it forwards into the holder (4).

To remove the on-board computer (3), press the locking mechanism (14) and slide the on-board computer forwards out of the holder (4).

► **Remove the on-board computer when you park the eBike.**

The on-board computer can be secured in place to prevent it from being removed from the holder. To do so, remove the holder (4) from the handlebars. Put the on-board computer in the holder. Screw the locking screw (15) (M3 thread, 8 mm long) from below into the thread provided in the holder. Mount the holder back onto the handlebars.

**Please note:** The locking screw is not designed to prevent theft.

## Operation

### Prerequisites

The eBike system can only be activated when the following requirements are met:

- A sufficiently charged battery is inserted (see battery operating instructions).
- The on-board computer is properly inserted in the holder (see "Fitting and removing the on-board computer (see figure A)", page English – 1).
- The speed sensor is connected properly (see drive unit operating instructions).

### Switching the eBike system on/off

The following options are available for **switching on** the eBike system:

- If the on-board computer is already switched on when you insert it into the holder, the eBike system will be activated automatically.
- Once the on-board computer and the eBike battery are fitted, briefly press the on/off button on the on-board computer.
- With the on-board computer inserted, push the on/off button on the eBike battery (bicycle manufacturer-specific solutions are possible when there is no access to the battery on/off button; see the battery operating instructions).

The drive is activated as soon as you start pedalling (except if you are using the push-assistance function or if the assistance level is set to **OFF**). The motor output depends on the settings of the assistance level on the on-board computer. As soon as you stop pedalling when in normal operation, or as soon as you have reached a speed of **25/45 km/h**, the eBike drive switches off the assistance. The drive is automatically reactivated as soon you start pedalling again and the speed is below **25/45 km/h**.

The following options are available for **switching off** the eBike system:

- Press the on/off button of the on-board computer.
- Switch off the eBike battery using its on/off button (bicycle manufacturer-specific solutions are possible when there is no access to the battery on/off button; see the bicycle manufacturer operating instructions).

- Remove the on-board computer from its holder. If no power is drawn from the eBike drive for about 10 minutes (e.g. because the eBike is not moving) and no button is pressed on the on-board computer or the operating unit of the eBike, the eBike system, and therefore also the battery, will switch off automatically to save energy.

### eShift (optional)

eShift is the integration of electronic gear-shifting systems into the eBike system. The eShift components are electrically connected to the drive unit by the manufacturer. The separate operating instructions describe how to operate the electronic gear-shifting systems.

### Energy supply of the on-board computer

If the on-board computer is in the holder (4), a sufficiently charged battery is inserted in the eBike and the eBike system is switched on, then the on-board computer is powered by the battery of the eBike.

If the on-board computer is removed from the holder (4), the energy is supplied via an internal battery. If the internal battery is weak when the on-board computer is switched on, **<Attach to bike>** will appear on the text indicator (d) for 3 s. The on-board computer will then turn off again.

To charge the internal battery, put the on-board computer back in the holder (4) (when a battery is inserted in the eBike). Switch the eBike battery on by its on/off button (see battery operating instructions).

You can also charge the on-board computer via the USB port. To do this, open the protective cap (8). Connect the USB port (7) of the on-board computer via a suitable USB cable to a standard USB charger or the USB port of a computer (5 V charging voltage, max. 500 mA charging current). **<USB connected>** will appear on the text indicator (d) of the on-board computer.

### Switching on/shutting down the on-board computer

To **switch on** the on-board computer, briefly press the on/off button (5). The on-board computer can also be switched on when it is not inserted in the holder (if the internal battery is sufficiently charged).

To **switch off** the on-board computer, press the on/off button (5).

If the on-board computer is not inserted in the holder, it automatically switches off after 1 minute to save energy if no button is pressed.

- **If you are not going to be using your eBike for several weeks, remove the on-board computer from its holder.** Store the on-board computer in a dry environment at room temperature. Regularly recharge the on-board computer's battery (at least every 3 months).

### Battery charge indicator

The battery charge indicator (i) displays the state of charge of the eBike battery, not that of the on-board computer's in-

ternal battery. The state of charge of the eBike battery can also be checked on the LEDs of the battery itself.

Each bar of the battery symbol on the indicator **(i)** represents approximately 20 % of the capacity:



The eBike battery pack is fully charged.



The eBike battery pack should be recharged.



The LEDs of the battery charge indicator on the battery go out. The capacity for assisting the drive has been used up, and assistance is gently switched off. The remaining capacity is made available for the lighting and the on-board computer. The indicator flashes. The capacity of the eBike battery is enough for about two hours of lighting. This does not account for other consumers (e.g. automatic gearbox, charging external devices at the USB port).

If the on-board computer is removed from the holder **(4)**, the last displayed state of charge of the battery is saved. If an eBike is powered by two batteries, the battery charge indicator **(i)** displays the state of charge of both batteries.



If an eBike has two batteries inserted into it and both batteries are charged on the bike, the charging progress of both batteries will be indicated on the display (the left-hand battery pack is being charged in the illustration). You can also tell by the flashing indicator on the battery which of the two batteries is being charged.

## Setting the assistance level

On the operating unit **(9)**, you can set the level of assistance you want the eBike drive to provide you with while pedalling. The assistance level can be changed at any time, even while cycling.

**Note:** In some models, the assistance level may be preset and cannot be changed. There may also be fewer assistance levels available than stated here.

The following assistance levels are available as a maximum:

- **OFF:** Motor assistance is switched off. The eBike can just be moved by pedalling, as with a normal bicycle. The push assistance cannot be activated at this assistance level.
- **ECO:** Effective assistance with maximum efficiency, for maximum range
- **TOUR:** Steady assistance, long range for touring
- **SPORT/eMTB:**

**SPORT:** Powerful assistance, for mountain biking and cycling in urban traffic

**eMTB:** Optimum assistance whatever the terrain, rapid acceleration when starting from a standstill, improved dynamics and top performance (**eMTB** only available in combination with the drive units BDU250P CX, BDU365, BDU450 CX and BDU480 CX. A software update may be required.)

- **TURBO:** Maximum assistance even at high pedalling speeds, for sport cycling

To **increase** the assistance level, press the **+** button **(12)** on the operating unit repeatedly until the required assistance level appears on indicator **(b)**. To **decrease** the assistance level, press the **–** button **(11)**.

The requested motor output is displayed in the indicator **(a)**. The maximum motor output depends on the selected assistance level.

When the on-board computer is removed from the holder **(4)**, the assistance level that was last displayed is saved; the motor output indicator **(a)** remains empty.

## Interaction between the eBike system and gear-shifting

The gear-shifting should be used with an eBike drive 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 stop pedalling when changing gear. This will aid the gear change and reduces wear on the powertrain.

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

For this reason, follow the gear change recommendations provided by the indicators **(g)** and **(h)** on your display. If indicator **(g)** is displayed, you should change to a higher gear with lower cadence. If indicator **(h)** is displayed, you should select a lower gear with higher cadence.

## Switching bike lights on/off

On the model on which the lighting is powered by the eBike system, the front and rear lights can be switched on and off at the same time via the on-board computer using the bike light button **(2)**.

Check that your bike lights are working correctly before every use.

When the lighting is switched on, **<Lights on>** appears and when the lighting is switched off, **<Lights off>** appears for approx. 1 s on the text indicator **(d)**. The lighting symbol **(c)** is displayed when the light is on.

The on-board computer saves the light status and activates this saved status accordingly after a restart.

Switching the bike lights on and off has no effect on the backlighting of the display.

## Switching the push assistance on/off

The push assistance aids you when pushing your eBike. The speed in this function depends on the selected gear and can reach a maximum of **6 km/h**. The lower the selected gear, the lower the speed of the push assistance function (at full power).

- **The push assistance function must only be used when pushing the eBike.** There is a risk of injury if the wheels of the eBike are not in contact with the ground while using the push assistance.

To **activate** the push assistance, briefly press the **WALK** button on your on-board computer. After activation, press the **+** button within 3 s and keep it pressed. The eBike drive is switched on.

**Note:** The push assistance cannot be activated at assistance level **OFF**.

The push assistance is **switched off** as soon as one of the following occurs:

- You release the **+** button;
- The wheels of the eBike are locked (e.g. by applying the brakes or hitting an obstacle);
- The speed exceeds **6 km/h**.

The push assistance function is subject to local regulations; the way it works may therefore differ from the description above, or the function may even be deactivated completely.

## Powering external devices via the USB port

The USB port can be used to operate or charge most devices that can be powered via USB (e.g. various mobile phones).

Charging requires the on-board computer to be mounted and a sufficiently charged battery to be inserted in the eBike.

Open the protective cap **(8)** for the USB port on the on-board computer. Use a Micro-A – Micro-B USB charging cable (available from your Bosch eBike dealer) to connect the USB port on the external device to the USB port **(7)** on the on-board computer.

Once the electrical load has been disconnected, the USB port must be carefully resealed with the protective cap **(8)**.

**USB connections are not waterproof. When cycling in the rain, do not connect any external devices and make sure that the USB port is fully sealed by the protective cover (8).**

**Important:** If electrical loads are connected, this can affect the range of the eBike.

## Displays and configurations of the on-board computer

### Speed and distance indicators

The **speedometer (f)** always displays the current speed.

You can choose from the following functions in the **function display** (combination of text indicator **(d)** and value indicator **(e)**):

- **<Clock>**: Current time
- **<Max. speed>**: Maximum speed achieved since the last reset
- **<Avg. speed>**: Average speed achieved since the last reset
- **<Trip time>**: Journey time since the last reset
- **<Range>**: Estimated range of the available battery charge (at constant conditions such as assistance level, route profile, etc.)
- **<Odometer>**: Total distance travelled with the eBike (cannot be reset)
- **<Trip distance>**: Distance travelled since the last reset

To **switch between display functions**, press the **i** button **(1)** on the on-board computer or the **i** button **(10)** on the operating unit repeatedly until the required function is displayed.

To reset the **<Trip distance>**, **<Trip time>** and **<Avg. speed>**, switch to one of these three functions and then press the **RESET** button **(6)** until the indicator is set to zero. This will also reset the values of the other two functions.

To reset the **<Max. speed>**, switch to this function and then press the **RESET** button **(6)** until the indicator is set to zero.

To reset the **<Range>**, switch to this function and then press the **RESET** button **(6)** until the indicator is reset to the value of the factory setting.

If the on-board computer is removed from the holder **(4)**, all values of the functions are saved and can still be displayed.

### Displaying/adjusting basic settings

The basic settings can be displayed and changed regardless of whether the on-board computer is inserted in the holder **(4)** or not. Some settings can only be viewed and changed when the HMI is inserted. Depending on the equipment of your eBike, some menu items may not be present.

To go to the basic settings menu, simultaneously press the **RESET** button **(6)** and the **i** button **(1)** until **<Configuration>** appears on the text indicator **(d)**.

To **switch between the basic settings**, press the **i** button **(1)** on the on-board computer repeatedly until the required basic setting is displayed. If the on-board computer is inserted in the holder **(4)**, you can also press the **i** button **(10)** on the operating unit.

To **change the basic settings**, press the on/off button **(5)** next to the **–** indicator to reduce or scroll down, or the lighting button **(2)** next to the **+** indicator to increase or scroll up. If the on-board computer is inserted in the holder **(4)**, it is also possible to change the settings with the **– (11)** and **+(12)** buttons on the operating unit.

To exit the function and save a changed setting, press the **RESET** button **(6)** for three seconds.

You can choose between the following basic settings:

- **<– Clock +>**: Setting the current time. The time can be changed faster by pressing the setting buttons for a longer period.
- **<– Wheel circum. +>**: Changing the value pre-set by the manufacturer by  $\pm 5\%$ . This menu item is displayed only when the on-board computer is in the holder.
- **<– English +>**: Changing the language of the text indicator. You can choose between German, English, French, Spanish, Italian, Portuguese, Swedish, Dutch and Danish.
- **<– Unit km/mi +>**: Displaying the speed and distance in either kilometres or miles.
- **<– Time format +>**: Displaying the time in 12-hour or 24-hour format.
- **<– Shift recom. on +>/<– Shift recom. off +>**: Switching the shift recommendation display on or off.
- **<Power-on hours>**: Total time travelled with the eBike (cannot be changed)
- **<Displ. vx.x.x.x>**: Display software version.

- **<DU vx.x.x.x>**: Drive unit software version. This menu item is displayed only when the on-board computer is in the holder.
- **<DU SN xxxxxxxx/xxx>**: Drive unit serial number. This menu item is displayed only when the on-board computer is in the holder.
- **<DU PN xxxxxxxxxx>**: Drive unit part number. This menu item is displayed only when the on-board computer is in the holder and the drive unit provides a part number.
- **<Service MM/YYYY>**: This menu item is displayed if the bicycle manufacturer has set a fixed service date.
- **<Serv. xx km/mi>**: This menu item is displayed if the bicycle manufacturer has set a service date after travelling a certain distance.
- **<Bat. vx.x.x.x>**: Battery software version. This menu item is displayed only when the on-board computer is in the holder. When using two batteries, the software versions of both batteries are displayed successively.
- **<Bat. PN xxxxxxxxxx>**: eBike battery part number. This menu item is displayed only when the on-board computer is in the holder and the eBike battery provides a part number. When using two batteries, the software versions of both batteries are displayed successively.
- **<Cha. vx.x.x.x>**: Software version of the charger used to charge the eBike battery. This is displayed only if the charger provides the software version.
- If the eBike is equipped with ABS, the software version, serial number and part number of the ABS are also displayed.

### Error code indication

The components of the eBike system are continuously and automatically monitored. If an error is detected, the corresponding error code will appear on the text indicator **(d)**. Press any button on the on-board computer **(3)** or on the operating unit **(9)** to return to the standard indication.

The drive may be automatically shut down, depending on the type of error. However, if you wish to continue cycling, you will always be able to do so without assistance from the drive. Before undertaking any other journeys, the eBike should be checked.

► **Have all repairs performed only by an authorised bike dealer.**

Code	Cause	Corrective measures
410	One or more buttons of the on-board computer are disabled.	Check whether any buttons are stuck, e.g. as a result of dirt finding its way in. Clean the buttons if need be.
414	Operating unit connection problem	Have the connections checked
418	One or more buttons on the operating unit are disabled.	Check whether any buttons are stuck, e.g. as a result of dirt finding its way in. Clean the buttons if need be.
419	Configuration error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
422	Drive unit connection problem	Have the connections checked
423	eBike battery connection problem	Have the connections checked
424	Communication problem between components	Have the connections checked
426	Internal time-out error	Restart the system. If the problem persists, contact your Bosch eBike dealer. With this error, it is not possible to bring up the wheel circumference in the basic settings menu or to adjust it.
430	Internal battery of the on-board computer is flat (does not apply to BUI350)	Charge the on-board computer (in the holder or via the USB port)
431	Software version error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
440	Internal drive unit fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
450	Internal software error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
460	Error at USB port	Remove the cable from the USB port of the on-board computer. If the problem persists, contact your Bosch eBike dealer.
490	Internal fault of the on-board computer	Have the on-board computer checked
500	Internal drive unit fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
502	Bike light fault	Check the light and the associated wiring. Restart the system. If the problem persists, contact your Bosch eBike dealer.

Code	Cause	Corrective measures
503	Speed sensor fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
504	Speed signal distortion detected.	Check that the spoke magnet is positioned correctly, and adjust it if necessary. Check that nothing has been tampered with (tuning). Drive assistance is reduced.
510	Internal sensor fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
511	Internal drive unit fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
530	Battery fault	Switch off the eBike, remove the eBike battery and reinsert the eBike battery. Restart the system. If the problem persists, contact your Bosch eBike dealer.
531	Configuration error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
540	Temperature error	The eBike is outside of the permissible temperature range. Switch off the eBike system and allow the drive unit to either cool down or heat up to the permissible temperature range. Restart the system. If the problem persists, contact your Bosch eBike dealer.
550	An impermissible load has been detected.	Remove the load. Restart the system. If the problem persists, contact your Bosch eBike dealer.
580	Software version error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
591	Authentication error	Switch off the eBike system. Remove the battery pack and reinsert it. Restart the system. If the problem persists, contact your Bosch eBike dealer.
592	Incompatible component	Use a compatible display. If the problem persists, contact your Bosch eBike dealer.
593	Configuration error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
595, 596	Communication error	Check the wiring to the drive and restart the system. If the problem persists, contact your Bosch eBike dealer.
602	Internal battery fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
603	Internal battery fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
605	Battery temperature error	The battery is outside of the permissible temperature range. Switch off the eBike system and allow the battery to either cool down or heat up to the permissible temperature range. Restart the system. If the problem persists, contact your Bosch eBike dealer.
606	External battery fault	Check the wiring. Restart the system. If the problem persists, contact your Bosch eBike dealer.
610	Battery voltage error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
620	Charger fault	Replace the charger. Contact your Bosch eBike dealer.
640	Internal battery fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
655	Multiple battery faults	Switch off the eBike system. Remove the battery pack and reinsert it. Restart the system. If the problem persists, contact your Bosch eBike dealer.
656	Software version error	Contact your Bosch eBike dealer so that they can perform a software update.



Code	Cause	Corrective measures
7xx	Error relating to third-party components	Observe the information in the operating instructions of the respective component manufacturer.
800	Internal ABS fault	Contact your Bosch eBike dealer.
810	Implausible signals from the wheel speed sensor	Contact your Bosch eBike dealer.
820	Fault in the wire to the front wheel speed sensor	Contact your Bosch eBike dealer.
821 to 826	Implausible signals from the front wheel speed sensor  The sensor disc may be missing, defective or fitted incorrectly; there is a significant difference in diameter between the front wheel and the rear wheel; extreme riding situation, e.g. riding solely on the rear wheel	Restart the system and carry out a test ride lasting at least two minutes. The ABS indicator light must go out. If the problem persists, contact your Bosch eBike dealer.
830	Fault in the wire to the rear wheel speed sensor	Contact your Bosch eBike dealer.
831 833 to 835	Implausible signals from the rear wheel speed sensor  The sensor disc may be missing, defective or fitted incorrectly; there is a significant difference in diameter between the front wheel and the rear wheel; extreme riding situation, e.g. riding solely on the rear wheel	Restart the system and carry out a test ride lasting at least two minutes. The ABS indicator light must go out. If the problem persists, contact your Bosch eBike dealer.
840	Internal ABS fault	Contact your Bosch eBike dealer.
850	Internal ABS fault	Contact your Bosch eBike dealer.
860, 861	Fault in the power supply	Restart the system. If the problem persists, contact your Bosch eBike dealer.
870, 871 880 883 to 885	Communication error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
889	Internal ABS fault	Contact your Bosch eBike dealer.
890	ABS indicator light is defective or missing; ABS may not be working.	Contact your Bosch eBike dealer.
No display	Internal fault of the on-board computer	Restart your eBike system by switching it off and back on.

## Maintenance and servicing

### Maintenance and cleaning

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

Clean your on-board computer using a soft cloth dampened only with water. Do not use any detergents.

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

The bicycle manufacturer or dealer may also base the service date on the distance travelled and/or a period of time. In this case, the on-board computer displays a message telling

you when the service date is due for 4 seconds each time it is switched on.

Please have your eBike serviced and repaired by an authorised bicycle dealer.

► **Have all repairs performed only by an authorised bike dealer.**

### After-sales service and advice on using products

If you have any questions about the eBike system and its components, contact an authorised bicycle dealer.

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

## Transport

- **If you transport your eBike attached to the outside of your car, e.g. on a bike rack, remove the on-board computer and the eBike battery to avoid damaging them.**

## Disposal



The drive unit, on-board computer incl. operating unit, battery, speed sensor, accessories and packaging should be disposed of in an environmentally correct manner.

Do not dispose of eBikes and their components with household waste.



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

Please return Bosch eBike components that are no longer usable to an authorised bicycle dealer.

**Subject to change without notice.**



**BOSCH**

# Purion

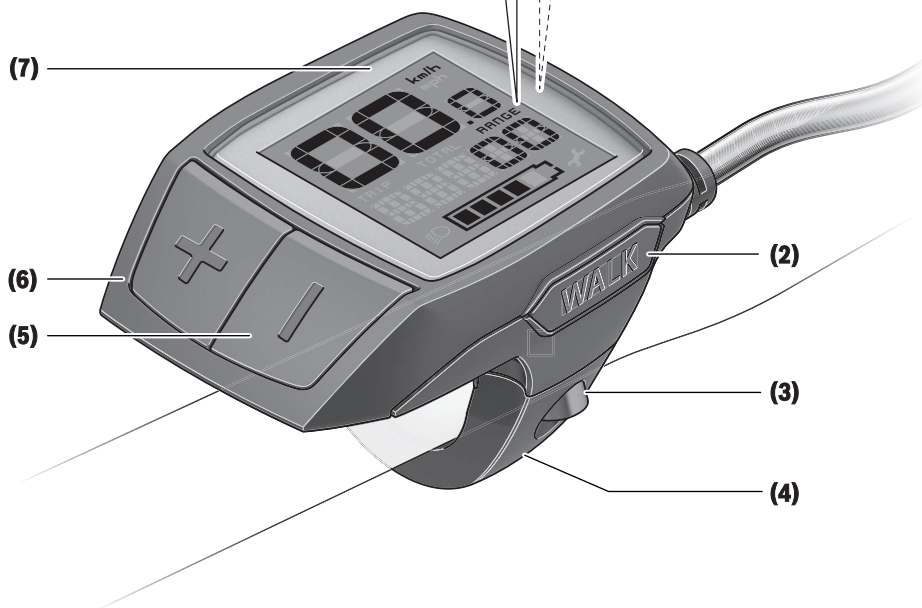
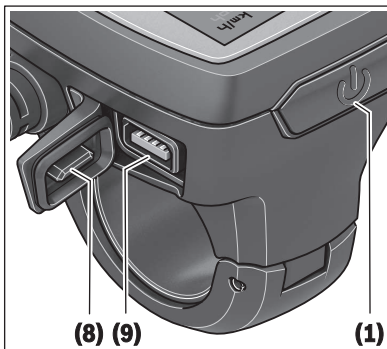
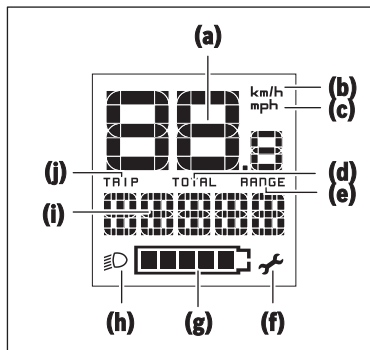
BUI215

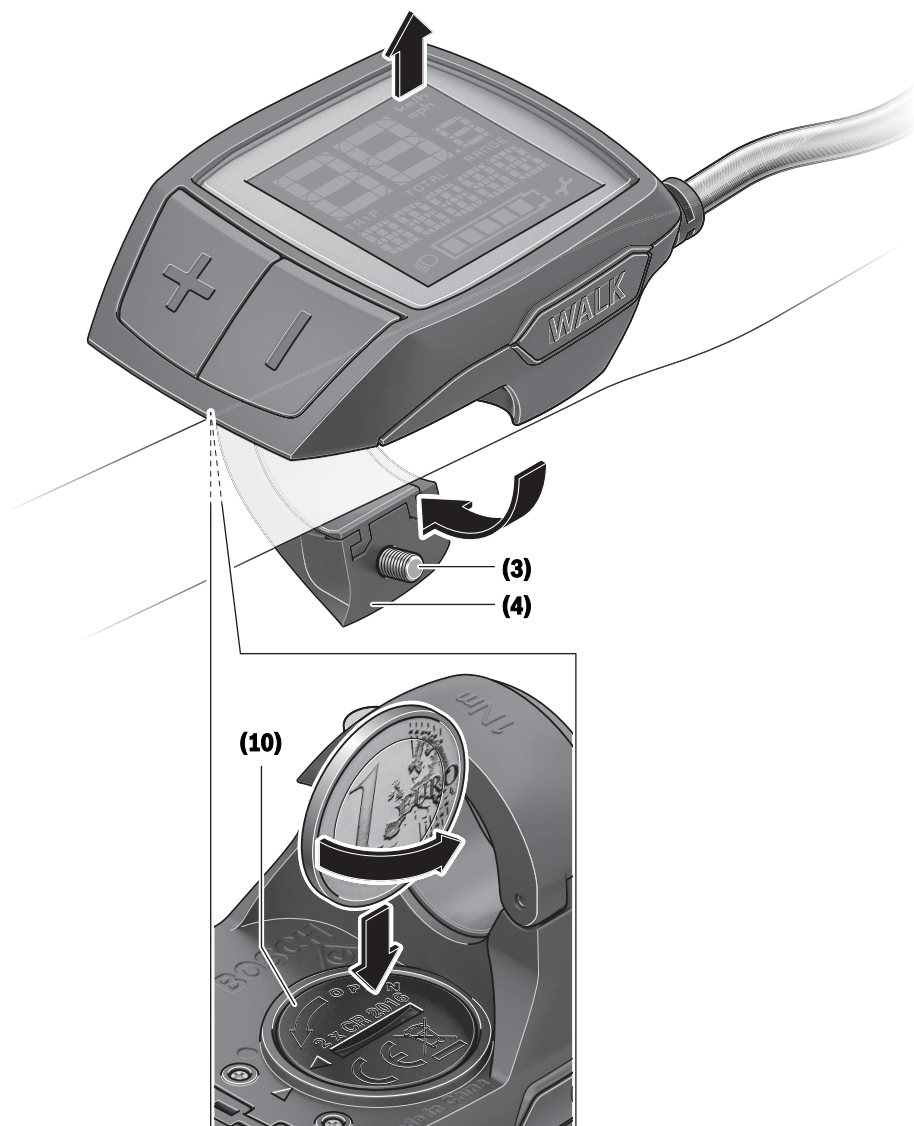


2

***GHOST***





**A**



## Safety instructions



**Read all the safety information and instructions.** Failure to observe the safety information and follow instructions may result in electric shock, fire and/or serious injury.

**Save all safety warnings and instructions for future reference.**

The term **battery** is used in these instructions to mean all original Bosch eBike rechargeable battery packs.

- ▶ **Do not allow yourself to be distracted by the on-board computer's display.** If you do not focus exclusively on the traffic, you risk being involved in an accident. If you want to make entries in your on-board computer other than switching the assistance level, stop and enter the appropriate data.
- ▶ **Read and observe the safety warnings and directions contained in all the eBike system operating instructions and in the operating instructions of your eBike.**
- ▶ **Set the display brightness so that you can adequately see important information such as speed and warning symbols.** Incorrectly set display brightness may lead to dangerous situations.

## Product description and specifications

### Intended use

The **Purion** on-board computer is designed to control Bosch eBike systems and display cycling data.

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

### Product features

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

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

- (1) On/off button for on-board computer
- (2) Push assistance button **WALK**
- (3) Fastening screw for on-board computer
- (4) Holder for on-board computer
- (5) Decrease assistance level button –
- (6) Increase assistance level button +
- (7) Display
- (8) Protective cap for USB port
- (9) USB diagnostic port (for servicing purposes only)
- (10) Battery compartment cover

### Display elements of on-board computer

- (a) Speedometer
- (b) km/h unit indicator
- (c) mph unit indicator
- (d) Total distance indicator **TOTAL**
- (e) Range indicator **RANGE**
- (f) Service indicator
- (g) Battery charge indicator
- (h) Illumination indicator
- (i) Assistance level indicator/value indicator
- (j) Trip distance indicator **TRIP**

### Technical data




On-board computer	Purion	
Product code		BUI215
Battery <sup>A)</sup>		2 × 3 V CR2016
Operating temperature	°C	–5 to +40
Storage temperature	°C	+10 to +40
Protection rating <sup>B)</sup>		IP 54 (dust and splash-proof)
Weight, approx.	kg	0.1

A) We recommend using the batteries offered by Bosch. You can purchase them from your bicycle dealer (article number: 1 270 016 819).

B) When the USB cover is closed  
The Bosch eBike system uses FreeRTOS  
(see <http://www.freertos.org>).

# Operation

## Symbols and their Meaning

Symbol	Explanation
	Short button press (less than 1 second)
	Medium button press (between 1 second and 2.5 seconds)
	Long button press (longer than 2.5 seconds)

## Start-up

### Prerequisites

The eBike system can only be activated when the following requirements are met:

- A sufficiently charged battery is inserted (see battery operating instructions).
- The speed sensor is connected properly (see drive unit operating instructions).

### Switching the eBike system on/off

The following options are available for **switching on** the eBike system:

- Press the on/off button **(1)** of the on-board computer with the eBike battery inserted.
- Press the on/off button of the eBike battery (see battery operating instructions).

The drive is activated as soon as you start pedalling (except if you are using the push-assistance function or if the assistance level is set to **OFF**). The motor output depends on the settings of the assistance level on the on-board computer.

As soon as you stop pedalling when in normal operation, or as soon as you have reached a speed of **25/45 km/h**, the eBike drive switches off the assistance. The drive is automatically reactivated as soon you start pedalling again and the speed is below **25/45 km/h**.

The following options are available for **switching off** the eBike system:

- Press the on/off button **(1)** of the on-board computer.
- Switch off the eBike battery using its on/off button (bicycle manufacturer-specific solutions are possible when there is no access to the battery on/off button; see the bicycle manufacturer operating instructions).

The system shuts down after being switched off. This takes approximately 3 seconds. It cannot be switched back on until shutdown has been completed.

If the eBike is not moved for approx. 10 min **and** no button is pressed on the on-board computer, the eBike system switches off automatically in order to save energy.

**Note:** Always switch off the eBike system when you park the eBike.

**Note:** If the batteries of the on-board computer are empty, you can still switch on your eBike using the bike's battery. It is, however, recommended that you replace the internal batteries as soon as possible in order to avoid damage.

## Energy supply of the on-board computer

The on-board computer is supplied with voltage by two CR2016 button cells.

### Changing the batteries (see figure A)

If the on-board computer shows **LOW BAT** on the display, remove the on-board computer from the handlebars by unscrewing the fastening screw **(3)** of the on-board computer. Open the battery compartment cover **(10)** using a suitable coin, remove the used batteries and insert new CR2016 batteries. You can obtain the batteries recommended by Bosch from your bicycle dealer.

When inserting the batteries, ensure that the polarity is correct.

Close the battery compartment again and fasten the on-board computer to your eBike's handlebars using the fastening screw **(3)**.

## Switching the push assistance on/off

The push assistance aids you when pushing your eBike. The speed in this function depends on the selected gear and can reach a maximum of **6 km/h**. The lower the selected gear, the lower the speed of the push assistance function (at full power).

- **The push assistance function must only be used when pushing the eBike.** There is a risk of injury if the wheels of the eBike are not in contact with the ground while using the push assistance.

To **activate** the push assistance, briefly press the **WALK** button on your on-board computer. After activation, press the **+** button within 3 s and keep it pressed. The eBike drive is switched on.

**Note:** The push assistance cannot be activated at assistance level **OFF**.

The push assistance is **switched off** as soon as one of the following occurs:

- You release the **+** button;
- The wheels of the eBike are locked (e.g. by applying the brakes or hitting an obstacle);
- The speed exceeds **6 km/h**.

The push assistance function is subject to local regulations; the way it works may therefore differ from the description above, or the function may even be deactivated completely.

## Setting the assistance level

You can set the level at which the eBike drive assists you while pedalling on the on-board computer. The assistance level can be changed at any time, even while cycling.



**Note:** In some models, the assistance level may be preset and cannot be changed. There may also be fewer assistance levels available than stated here.

The following assistance levels are available as a maximum:

- **OFF:** Motor assistance is switched off. The eBike can just be moved by pedalling, as with a normal bicycle. The push assistance cannot be activated at this assistance level.





- **ECO:** Effective assistance with maximum efficiency, for maximum range
- **TOUR:** Steady assistance, long range for touring
- **SPORT/eMTB:**
  - SPORT:** Powerful assistance, for mountain biking and cycling in urban traffic
  - eMTB:** Optimum assistance whatever the terrain, rapid acceleration when starting from a standstill, improved dynamics and top performance (**eMTB** only available in combination with the drive units BDU250P CX, BDU365, BDU450 CX and BDU480 CX. A software update may be required.)
- **TURBO:** Maximum assistance even at high pedalling speeds, for sport cycling

To **increase** the assistance level, briefly  press the button **+** (6) on the on-board computer repeatedly until the required assistance level appears on the indicator (i). To **decrease** the assistance level briefly  press the button **-** (5).

If the display is set to **TRIP**, **TOTAL** or **RANGE**, the selected assistance level will only be superimposed briefly (for approx. one second) on the display when switching over.

## Switching bicycle lights on/off

For the model which has the bike lights powered by the eBike system, a medium-length press  of the button **+** will switch on the front and rear lights simultaneously. To switch off the bike lights, press and hold  the button **+**.

The lighting symbol (**h**) is displayed when the light is on.

Check that your bike lights are working correctly before every use.

The on-board computer saves the light status and activates this saved status accordingly after a restart.

Switching the bike lights on and off has no effect on the backlighting of the display.

# Displays and configurations of the on-board computer


## Battery charge indicator

The battery charge indicator **(g)** displays the eBike battery's state of charge. The state of charge of the eBike battery can also be checked on the LEDs of the battery itself.

In the indicator **(g)**, each bar in the battery symbol represents approximately 20 % capacity:

 The eBike battery is fully charged.



 The eBike battery should be recharged.


 The LEDs of the battery charge indicator on the battery go out. The capacity for assisting the drive has been used up, and assistance is gently switched off. The remaining capacity is made available for the lighting. The indicator flashes.


The capacity of the eBike battery is enough for about two hours of lighting.



## Speed and distance indicators

The speedometer **(a)** always displays the current speed.

Indicator **(i)** always displays the last setting as standard. Repeated medium-length presses  of the button – will display the trip distance **TRIP**, the total distance **TOTAL** and the range of the battery **RANGE** one after the other. (Briefly pressing  the button – will decrease the assistance level.)

To **reset** the trip distance **TRIP**, select the trip distance **TRIP** and simultaneously press and hold  the buttons + and –. The display will initially show **RESET**. If you continue to press both buttons, the trip distance **TRIP** will be set to **0**.







To **reset** the range of the battery **RANGE**, select the battery range **RANGE** and simultaneously press and hold  the buttons + and –. The display will initially show **RESET**. If you continue to press both buttons, the trip distance **TRIP** will be set to **0**.

























You can switch the displayed values from kilometres to miles by holding down  the button – and briefly pressing  the on/off button **(1)**.

The versions of the subsystems and their model part numbers can be displayed for the purposes of servicing, provided the subsystems divulge this information (dependent on the subsystem). With the system **switched off**, simultaneously press the buttons – and + and then press the on/off button **(1)**.

The USB port is reserved for connecting diagnostic systems. The USB port does not have any other function.

► **The USB connection must always be completely sealed with the protective cap (8).**

Action	Buttons	Duration
Switch on on-board computer		
Switch off on-board computer		
Increase assistance		

Action	Buttons	Duration
Decrease assistance		
Display <b>TRIP</b> , <b>TOTAL</b> , <b>RANGE</b> , assistance modes		
Switch on bike lights		
Switch off bike lights		
Reset trip distance	 	
Activate push assistance	<b>WALK</b>	1. 
Implement push assistance		2. Any
Switch from kilometres to miles	 	1. Keep pressed 2. 
Display the versions <sup>A)B)</sup>	  	1. Keep pressed 2. 
Adjust display brightness <sup>C)</sup>	   – or +	1. Keep pressed 2. 

A) The eBike system must be switched off.

B) The information is shown as scrolling text.

C) The display must be switched off.

## Error code display

The eBike system's components are continuously and automatically monitored. If an error is detected, the corresponding error code is displayed on the on-board computer.

The drive may be automatically shut down, depending on the type of error. However, if you wish to continue cycling, you

will always be able to do so without assistance from the drive. Before undertaking any other journeys, the eBike should be checked.

► **Have all repairs performed only by an authorised bike dealer.**

Code	Cause	Corrective measures
410	One or more buttons of the on-board computer are disabled.	Check whether any buttons are stuck, e.g. as a result of dirt finding its way in. Clean the buttons if need be.
414	Operating unit connection problem	Have the connections checked
418	One or more buttons on the operating unit are disabled.	Check whether any buttons are stuck, e.g. as a result of dirt finding its way in. Clean the buttons if need be.
419	Configuration error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
422	Drive unit connection problem	Have the connections checked
423	eBike battery connection problem	Have the connections checked
424	Communication problem between components	Have the connections checked
426	Internal time-out error	Restart the system. If the problem persists, contact your Bosch eBike dealer. With this error, it is not possible to bring up the wheel circumference in the basic settings menu or to adjust it.
430	Internal battery of the on-board computer is flat (does not apply to BUI350)	Charge the on-board computer (in the holder or via the USB port)
431	Software version error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
440	Internal drive unit fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
450	Internal software error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
460	Error at USB port	Remove the cable from the USB port of the on-board computer. If the problem persists, contact your Bosch eBike dealer.
490	Internal fault of the on-board computer	Have the on-board computer checked
500	Internal drive unit fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
502	Bike light fault	Check the light and the associated wiring. Restart the system. If the problem persists, contact your Bosch eBike dealer.
503	Speed sensor fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
504	Speed signal distortion detected.	Check that the spoke magnet is positioned correctly, and adjust it if necessary. Check that nothing has been tampered with (tuning). Drive assistance is reduced.
510	Internal sensor fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
511	Internal drive unit fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
530	Battery fault	Switch off the eBike, remove the eBike battery and reinsert the eBike battery. Restart the system. If the problem persists, contact your Bosch eBike dealer.
531	Configuration error	Restart the system. If the problem persists, contact your Bosch eBike dealer.

Code	Cause	Corrective measures
540	Temperature error	The eBike is outside of the permissible temperature range. Switch off the eBike system and allow the drive unit to either cool down or heat up to the permissible temperature range. Restart the system. If the problem persists, contact your Bosch eBike dealer.
550	An impermissible load has been detected.	Remove the load. Restart the system. If the problem persists, contact your Bosch eBike dealer.
580	Software version error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
591	Authentication error	Switch off the eBike system. Remove the battery pack and reinsert it. Restart the system. If the problem persists, contact your Bosch eBike dealer.
592	Incompatible component	Use a compatible display. If the problem persists, contact your Bosch eBike dealer.
593	Configuration error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
595, 596	Communication error	Check the wiring to the drive and restart the system. If the problem persists, contact your Bosch eBike dealer.
602	Internal battery fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
603	Internal battery fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
605	Battery temperature error	The battery is outside of the permissible temperature range. Switch off the eBike system and allow the battery to either cool down or heat up to the permissible temperature range. Restart the system. If the problem persists, contact your Bosch eBike dealer.
606	External battery fault	Check the wiring. Restart the system. If the problem persists, contact your Bosch eBike dealer.
610	Battery voltage error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
620	Charger fault	Replace the charger. Contact your Bosch eBike dealer.
640	Internal battery fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
655	Multiple battery faults	Switch off the eBike system. Remove the battery pack and reinsert it. Restart the system. If the problem persists, contact your Bosch eBike dealer.
656	Software version error	Contact your Bosch eBike dealer so that they can perform a software update.
7xx	Error relating to third-party components	Observe the information in the operating instructions of the respective component manufacturer.
800	Internal ABS fault	Contact your Bosch eBike dealer.
810	Implausible signals from the wheel speed sensor	Contact your Bosch eBike dealer.
820	Fault in the wire to the front wheel speed sensor	Contact your Bosch eBike dealer.
821 to 826	Implausible signals from the front wheel speed sensor  The sensor disc may be missing, defective or fitted incorrectly; there is a significant difference in diameter between the front wheel and the rear wheel; extreme riding	Restart the system and carry out a test ride lasting at least two minutes. The ABS indicator light must go out. If the problem persists, contact your Bosch eBike dealer.

Code	Cause	Corrective measures
	situation, e.g. riding solely on the rear wheel	
830	Fault in the wire to the rear wheel speed sensor	Contact your Bosch eBike dealer.
831 833 to 835	Implausible signals from the rear wheel speed sensor  The sensor disc may be missing, defective or fitted incorrectly; there is a significant difference in diameter between the front wheel and the rear wheel; extreme riding situation, e.g. riding solely on the rear wheel	Restart the system and carry out a test ride lasting at least two minutes. The ABS indicator light must go out. If the problem persists, contact your Bosch eBike dealer.
840	Internal ABS fault	Contact your Bosch eBike dealer.
850	Internal ABS fault	Contact your Bosch eBike dealer.
860, 861	Fault in the power supply	Restart the system. If the problem persists, contact your Bosch eBike dealer.
870, 871 880 883 to 885	Communication error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
889	Internal ABS fault	Contact your Bosch eBike dealer.
890	ABS indicator light is defective or missing; ABS may not be working.	Contact your Bosch eBike dealer.
No display	Internal fault of the on-board computer	Restart your eBike system by switching it off and back on.


## Maintenance and servicing

### Maintenance and cleaning

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

Clean your on-board computer using a soft cloth dampened only with water. Do not use any detergents.

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

The bicycle manufacturer or dealer can also store a distance travelled for the service date in the system. In this case, the on-board computer will show you that the service date is due by displaying **(f)** .

Please have your eBike serviced and repaired by an authorised bicycle dealer.

### After-sales service and advice on using products

If you have any questions about the eBike system and its components, contact an authorised bicycle dealer.

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

### Disposal



The drive unit, on-board computer incl. operating unit, battery, speed sensor, accessories

and packaging should be disposed of in an environmentally correct manner.

Do not dispose of eBikes and their components with household waste.



In accordance with Directive 2012/19/EU and Directive 2006/66/EC respectively, electronic devices that are no longer usable and defective/drain batteries must be collected separately and recycled in an environmentally friendly manner.

Please return Bosch eBike components that are no longer usable to an authorised bicycle dealer.

**Subject to change without notice.**





**BOSCH**

**Kiox**

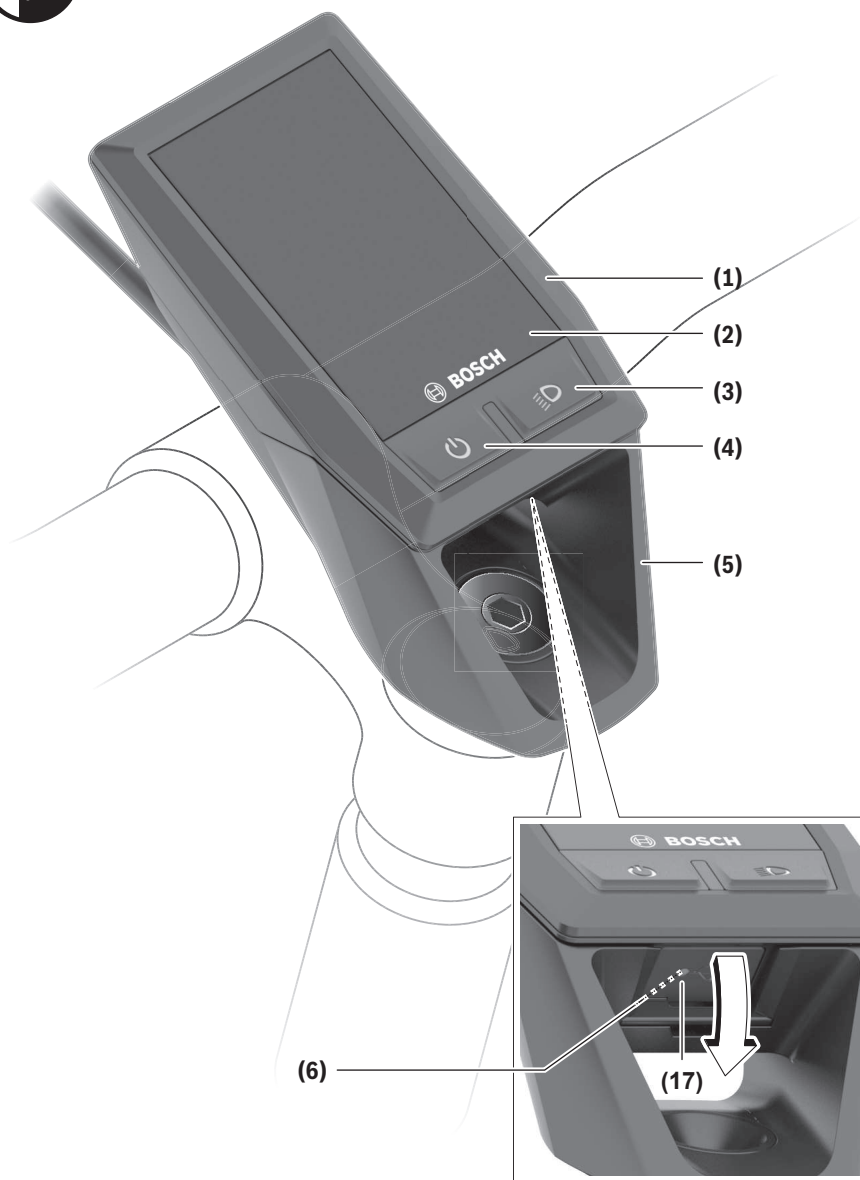
BUI330



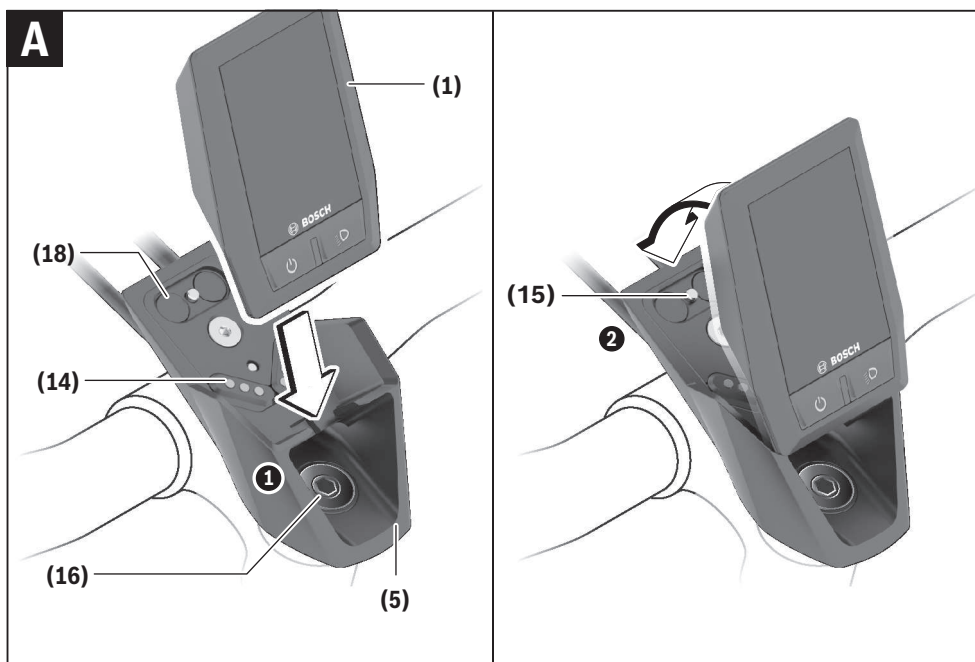
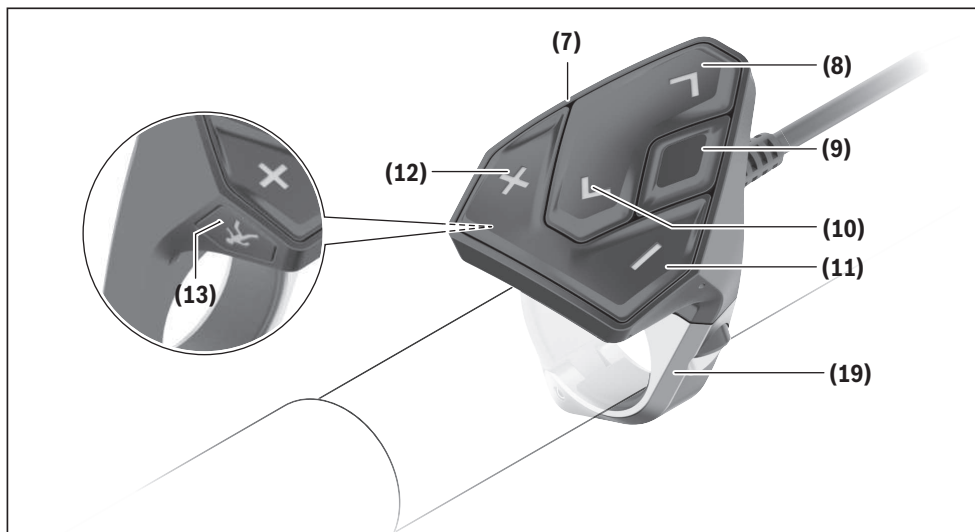
3

***GHOST***











## Safety instructions



**Read all the safety information and instructions.** Failure to observe the safety information and follow instructions may result in electric shock, fire and/or serious injury.

### Save all safety warnings and instructions for future reference.

The term **battery** is used in these instructions to mean all original Bosch eBike rechargeable battery packs.

- ▶ **Do not allow yourself to be distracted by the on-board computer's display.** If you do not focus exclusively on the traffic, you risk being involved in an accident. If you want to make entries in your on-board computer other than switching the assistance level, stop and enter the appropriate data.
- ▶ **Set the display brightness so that you can adequately see important information such as speed and warning symbols.** Incorrectly set display brightness may lead to dangerous situations.
- ▶ **Do not open the on-board computer.** Opening the on-board computer may damage it beyond repair and void any warranty claims.
- ▶ **Do not use the on-board computer as a handle.** Lifting the eBike up by the on-board computer can cause irreparable damage to the on-board computer.
- ▶ **Do not stand your bicycle upside down on its saddle and handlebars if the on-board computer or its holder protrude from the handlebars.** This may irreparably damage the on-board computer or the holder. Also remove the on-board computer before placing the bicycle on a wall mount to ensure that the on-board computer does not fall off or become damaged.
- ▶ **Caution!** When using the on-board computer with *Bluetooth®* and/or WiFi, interference can occur with other devices and equipment, aircraft and medical devices (e.g. pacemakers, hearing aids). Likewise, injury to people and animals in the immediate vicinity cannot be excluded entirely. Do not use the on-board computer with *Bluetooth®* in the vicinity of medical devices, petrol stations, chemical plants, areas with a potentially explosive atmosphere or on blast sites. Do not use the on-board computer with *Bluetooth®* in aeroplanes. Avoid using the on-board computer near your body for extended periods.
- ▶ The *Bluetooth®* word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Bosch eBike Systems is under licence.
- ▶ **The on-board computer is equipped with a wireless interface. Local operating restrictions, e.g. in aeroplanes or hospitals, must be observed.**

## Privacy notice

If the on-board computer is sent to Bosch Service because it requires servicing, the data stored on the on-board computer may be transmitted to Bosch.

## Product description and specifications

### Intended use

The Kiox on-board computer is designed to control Bosch eBike systems and display riding data.

To access the full functionality of the Kiox on-board computer, you will need a compatible smartphone installed with the eBike Connect app (available from the App Store or Google Play Store) and a registration with the eBike Connect portal ([www.ebike-connect.com](http://www.ebike-connect.com)).

### Product features

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

- (1) On-board computer
- (2) Display
- (3) Bike light button
- (4) On/off button for on-board computer
- (5) Holder for on-board computer
- (6) USB port
- (7) Operating unit
- (8) Next/right page button >
- (9) Select button
- (10) Previous/left page button <
- (11) Decrease assistance level button –/  
Scroll down button
- (12) Increase assistance level button +/  
Scroll up button
- (13) Push assistance button
- (14) Drive unit contacts
- (15) Locking screw for on-board computer
- (16) Headset screw
- (17) Protective cover for USB port<sup>A)</sup>
- (18) Magnetic holder
- (19) Holder for operating unit

A) Available as spare part

## Technical data

On-board computer		Kiox
Product code		BUI330
Max. charging current of USB port <sup>A)</sup>	mA	1000
USB port charging voltage	V	5
USB charging cable <sup>B)</sup>		1 270 016 360
Operating temperature	°C	-5 to +40
Charging temperature	°C	0 to +40
Storage temperature	°C	+10 to +40
Internal lithium-ion battery	V	3.7
	mAh	230
Protection rating <sup>C)</sup>		IP x7
Weight, approx.	g	60
<i>Bluetooth® Low Energy</i>		
- Frequency	MHz	2400–2480
- Transmission power	mW	< 10

A) At an ambient temperature of <25 °C

B) Not included as part of standard delivery

C) When the USB cover is closed

## Declaration of Conformity

Robert Bosch GmbH, Bosch eBike Systems, hereby declares that the **Kiox** radio communication unit complies with Directive 2014/53/EU. The full text of the EU Declaration of Conformity can be accessed at the following Internet address: <https://www.ebike-connect.com/conformity>

## Fitting

### Fitting and removing the on-board computer (see figure A)

Fit the lower part of the Kiox into the holder (5) first and tilt it forward gently until you can feel that the on-board computer is firmly fixed in the magnetic holder.

To remove the on-board computer, hold it by the top end and pull it towards you until it disengages from the magnetic holder.

#### ► Remove the on-board computer when you park the eBike.

The on-board computer can be secured in place to prevent it from being removed from the holder. To do this, loosen the headset screw (16) until the Kiox holder can be swivelled sideways. Put the on-board computer in the holder. Screw the locking screw (M3 thread, 6 mm long) from below into the thread provided in the on-board computer (using a longer screw may damage the on-board computer). Swivel the holder back into place and tighten the headset screw in accordance with the manufacturer's specifications.

## Operation

### Before initial commissioning

The **Kiox** is supplied with a partially charged battery. Before using it for the first time, this battery must be charged for at least one hour via the USB port (see "Power supply of the on-board computer", page English – 3) or via the eBike system.

The control unit should be attached such that the buttons are almost perpendicular to the handlebars.

When using the on-board computer for the first time, the language selection page is displayed initially. You can then choose to have essential functions and indications explained via the **<Intro to Kiox>** menu item. The menu item can also be called up at a later time via **<Settings>** → **<Information>**.

### Selecting system settings

Fit the on-board computer in the holder and proceed as follows with the bicycle stationary:

Go to the status page (use the **<** button (10) on the control unit to get to the first display) and call up the **<Settings>** with the select button.

You can use the **– (11)** and **+ (12)** buttons to select the setting you want. You can open the settings, as well as any additional submenus, using the select button (9). You can use the **<** button (10) to go back to the previous menu from any settings menu.

The following settings can be changed in the **<Sys settings>**:

- **<Brightness>**
- **<Time>**
- **<Date [DD.Mon.YYYY]>**
- **<Time zone>**
- **<24h form (24h time format)>**
- **<Brgh backg. (Bright background)>**
- **<Imp. units (Imperial units)>**
- **<Language>**
- **<Factory reset>**

### Starting up the eBike system

#### Requirements

The eBike system can only be activated when the following requirements are met:

- A sufficiently charged eBike battery is inserted (see operating instructions for the battery).
- The on-board computer is properly fitted to the holder.

#### Switching the eBike system on/off

The following options are available for **switching on** the eBike system:

- Once the on-board computer and the eBike battery are fitted, briefly press the on/off button (4) on the on-board computer.

- With the on-board computer inserted, push the on/off button on the eBike battery (bicycle manufacturer-specific solutions are possible when there is no access to the battery on/off button; see the battery operating instructions).

The drive is activated as soon as you start pedalling (except if you are using the push-assistance function or if the assistance level is set to **OFF**). The motor output depends on the settings of the assistance level on the on-board computer.

As soon as you stop pedalling when in normal operation, or as soon as you have reached a speed of **25/45 km/h**, the eBike drive switches off the assistance. The drive is automatically reactivated as soon you start pedalling again and the speed is below **25/45 km/h**.

The following options are available for **switching off** the eBike system:

- Briefly press the on/off button **(4)** of the on-board computer.
- Switch off the eBike battery using its on/off button (bicycle manufacturer-specific solutions are possible when there is no access to the battery on/off button; see the bicycle manufacturer operating instructions).
- Remove the on-board computer from its holder.

If no power is drawn from the eBike drive for about 10 minutes (e.g. because the eBike is not moving) and no button is pressed on the on-board computer or the operating unit of the eBike, the eBike system, and therefore also the battery, will switch off automatically to save energy.

## Power supply of the on-board computer

If the on-board computer is in the holder **(5)**, a sufficiently charged eBike battery is inserted into the eBike and the eBike system is switched on, then the on-board computer battery is powered and charged by the eBike battery.

If the on-board computer is removed from the holder **(5)**, the power is supplied by the on-board computer battery. If the on-board computer battery's charge is running low, a warning message appears on the display.

To charge the on-board computer battery, slide the on-board computer back onto the holder **(5)**. Note that if you do not charge the eBike battery straight away, the eBike system will automatically switch off after 10 minutes of inactivity. If this happens, the on-board computer battery will also stop charging.

You can also charge the on-board computer via the USB port **(6)**. To do this, open the protective cap **(17)**. Use a Micro USB cable to connect the USB port on the on-board computer to a commercially available USB charger (not included with the product as standard) or to the USB port of a computer (max. **5 V** charging voltage; max. **500 mA** charging current).

If the on-board computer is removed from the holder **(5)**, all values for the functions are saved and can still be scrolled through.

If the Kiox battery is not recharged, the date and time will be retained for up to 6 months. When the on-board computer is switched on again, the date and time will be reset if a *Bluetooth®* connection to the app has been established and

the smartphone has successfully identified the current location via GPS.

**Note:** The Kiox **only** charges while it is switched on.

**Note:** If the Kiox is switched off during charging via a USB cable, the Kiox can only be switched on again once the USB cable has been disconnected.

**Note:** To maximise the lifespan of the on-board computer's battery, it should be recharged for one hour every three months.

## Battery Charge Indicator

The battery charge indicator of the eBike battery **d** (see "Start page", page English – 6) can be read on the status page and in the status bar. The eBike battery's state of charge is also indicated by the LEDs on the eBike battery itself.

Colour of the indicator	Explanation
White	The eBike battery is over 30 % charged.
Yellow	The eBike battery is between 15 % and 30 % charged.
Red	The eBike battery is between 0 % and 15 % charged.
Red + !	The capacity for assisting the drive has been used up, and assistance is switched off. The remaining capacity will be provided for the bike lights and the on-board computer.

If the eBike battery is being charged on the bike, a corresponding notification will be displayed.

If the on-board computer is removed from the holder **(5)**, the state of charge that was last displayed for the battery is saved.

## Storage mode/resetting the Kiox

The on-board computer has an energy-saving storage mode which minimises the rate at which the internal battery discharges. Setting to this mode erases the date and time.

This mode can only be activated by pressing and holding the on/off button **(4)** of the on-board computer for at least 8 seconds.

If the on-board computer does not start when the on/off button **(4)** is pressed briefly, the on-board computer is in storage mode.

You can deactivate storage mode by pressing the on/off button **(4)** for at least 2 seconds.

The on-board computer detects whether it is in a fully functional condition. If you press and hold the on/off button **(4)** for at least 8 seconds while in a fully functional condition, the on-board computer will go into storage mode. If, contrary to expectations, the Kiox is not in a fully functional condition and cannot be operated, pressing and holding the on/off button **(4)** (for at least 8 seconds) will reset it. After being reset, the on-board computer will restart automatically

after approx. 5 seconds. If the Kiox does not restart, press the on/off button **(4)** for 2 seconds.

To reset the Kiox to its factory settings, select **<Settings>** → **<Sys settings>** → **<Factory reset>**. All user data will be lost.

## Setting the assistance level

On the operating unit **(7)**, you can set the level of assistance you want the eBike drive to provide you with while pedalling. The assistance level can be changed at any time, even while cycling.

**Note:** In some models, the assistance level may be preset and cannot be changed. There may also be fewer assistance levels available than stated here.

The following assistance levels are available as a maximum:

- **OFF:** Motor assistance is switched off. The eBike can just be moved by pedalling, as with a normal bicycle. The push assistance cannot be activated at this assistance level.
- **ECO:** Effective assistance with maximum efficiency, for maximum range
- **TOUR:** Steady assistance, long range for touring
- **SPORT/eMTB:**  
**SPORT:** Powerful assistance, for mountain biking and cycling in urban traffic  
**eMTB:** Optimum assistance whatever the terrain, rapid acceleration when starting from a standstill, improved dynamics and top performance (**eMTB** only available in combination with the drive units BDU250P CX, BDU365, BDU450 CX and BDU480 CX. A software update may be required.)
- **TURBO:** Maximum assistance even at high pedalling speeds, for sport cycling

To **increase** the assistance level, press the **+ (12)** button on the operating unit repeatedly until the desired assistance level appears on the display. To **decrease** the assistance level, press the **– (11)** button.

The requested motor output appears on the display **h** (see "Start page", page English – 6). The maximum motor output depends on the selected assistance level.

If the on-board computer is removed from the holder **(5)**, the assistance level that was last displayed is saved.

## Switching the push assistance on/off

The push assistance aids you when pushing your eBike. The speed in this function depends on the selected gear and can reach a maximum of **6 km/h**. The lower the selected gear, the lower the speed of the push assistance function (at full power).

► **The push assistance function must only be used when pushing the eBike.** There is a risk of injury if the wheels of the eBike are not in contact with the ground while using the push assistance.

To **activate** the push assistance, briefly press the **WALK** button on your on-board computer. After activation, press the **+** button within 3 s and keep it pressed. The eBike drive is switched on.

**Note:** The push assistance cannot be activated at assistance level **OFF**.

The push assistance is **switched off** as soon as one of the following occurs:

- You release the **+** button;
- The wheels of the eBike are locked (e.g. by applying the brakes or hitting an obstacle);
- The speed exceeds **6 km/h**.

The push assistance function is subject to local regulations; the way it works may therefore differ from the description above, or the function may even be deactivated completely.

## Switching bicycle lights on/off

On the model on which the lighting is powered by the eBike system, the front and rear lights can be switched on and off at the same time via the on-board computer using the bike light button **(3)**.

Check that your bike lights are working correctly before every use.

With the light switched on, the lighting **c** indicator (see "Start page", page English – 6) appears in the status bar on the display.

Switching the bike lights on and off has no effect on the backlighting of the display.

## Creating a user ID

In order to use all the features of the operating system, you must register online.

With a user ID, you can analyse your ride data and routes, among other things.

You can set up a user ID via your **Bosch eBike Connect** smartphone app or simply at [www.eBike-Connect.com](http://www.eBike-Connect.com). Enter the details required for registration. The **Bosch eBike Connect** smartphone app is available to download free of charge from the App Store (for Apple iPhones) or from the Google Play Store (for Android devices).

## Connecting to the On-Board Computer using the Bosch eBike Connect App

Follow these steps to establish a connection to your smartphone:

- Load the app.
- Select the tab **<My eBike>**.
- Select **<Add new eBike device>**.
- Add **Kiox**.

The app will then display an instruction to press and hold the bike lighting button **(3)** on the on-board computer for 5 seconds.

Press and hold the button **(3)** for at least 5 seconds. The on-board computer automatically activates the **Bluetooth® Low Energy** connection and switches to pairing mode.

Follow the instructions on the screen. Once pairing is complete, the user data is synchronised.

**Note:** The **Bluetooth®** connection does not have to be activated manually.

## Activity tracking

In order to record activities, you must be registered with and logged into the eBike Connect portal or the eBike Connect app.

To record activities, you must consent to the storage of your location data in the portal and/or in the app. Without this, your activities will not be shown in the portal or the app.

Your position is only recorded if the on-board computer is connected to the eBike Connect app.

## eShift (optional)

eShift is the integration of electronic gear-shifting systems into the eBike system. The eShift components are electrically connected to the drive unit by the manufacturer. The separate operating instructions describe how to operate the electronic gear-shifting systems.

## eSuspension (optional)

eSuspension is the integration of electronic shock absorption and suspension elements into the eBike system. You can use the **Quick Menu** to select predefined settings for the eSuspension system.

For details of these settings, please refer to the operating instructions provided by the eSuspension manufacturer.

eSuspension is only available in combination with the Kiox on-board computer and can only be used with the BDU450 CX, BDU480 CX and BDU490P drive units.

## ABS – anti-lock braking system (optional)

If the wheel is fitted with a Bosch eBike ABS with no external control lights, the control lights will be shown on the **Kiox** display when the system starts and in the event of a fault.

For detailed information on the ABS and how it works, please refer to the ABS operating instructions.

## Lock (premium function)

The Lock function is available to purchase from the **<Shop>** in the eBike Connect app. Once the Lock function is switched on by disconnecting the on-board computer, the eBike drive unit assistance is deactivated. It can only then be activated using the on-board computer belonging to the eBike.

Detailed operating instructions can be found online at [www.Bosch-eBike.com/Kiox-manual](http://www.Bosch-eBike.com/Kiox-manual).

## Software updates

Software updates are transferred to the on-board computer in the background of the app as soon as it is connected to the app. When an update is complete, this will be displayed the next **three times** the on-board computer is restarted.

Alternatively, you can check in the **<Sys settings>** whether an update is available.

## Powering external devices via the USB port

The USB port can be used to operate or charge most devices that can be powered via USB (e.g. various mobile phones).

Charging requires the on-board computer to be mounted and a sufficiently charged battery to be inserted in the eBike. Open the protective cap **(17)** for the USB port on the on-board computer. Use a Micro-A – Micro-B USB charging cable (available from your Bosch eBike dealer) to connect the USB port on the external device to the USB port **(6)** on the on-board computer.

Once the electrical load has been disconnected, the USB port must be carefully resealed with the protective cap **(17)**.

**USB connections are not waterproof. When cycling in the rain, do not connect any external devices and make sure that the USB port is fully sealed by the protective cover (17).**

**Important:** If electrical loads are connected, this can affect the range of the eBike.

## Displays and settings of the on-board computer

**Please note:** All screenshots showing the display and text on the following pages are from the approved software version. The display and/or text may change slightly following a software update.

### Operating logic

You can use the **< (10)** and **> (8)** buttons to switch between the different riding value information pages (even while riding). This way, you can keep both hands on the handlebars while cycling.

You can use the **⊕ (12)** and **⊖ (11)** buttons to increase or decrease the assistance level.

The **<Settings>** that can be accessed via the **Status screen** cannot be changed while riding.

You can use the select button **(9)** to perform the following functions:

- You can access the quick menu while riding.
- You can access the settings menu from the **Status screen** while stationary.
- You can confirm values and acknowledge informative hints.
- You can exit a dialogue.

If the on-board computer is removed from its holder and not switched off, it will display information regarding the last journey, as well as status information, on a loop.

If no button is pressed after the on-board computer is removed from the holder, it will switch itself off after 1 minute.

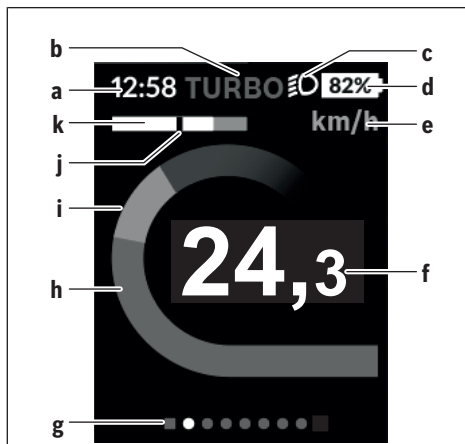
### Order of pages

Provided the on-board computer is fitted to the holder, you can view the following displays one after the other:

1. Start page
2. Time and range
3. Distance and journey time
4. Power and cadence
5. Average and maximum speed
6. Distance, range, power and heart rate
7. Heart rate
8. Calories burnt and total distance
9. Status page

### Start page

When you insert the on-board computer into the holder while it is switched on, it will display the start page.



- a** Time/speed indicator
- b** Assistance level indicator
- c** Lighting indicator
- d** Battery charge indicator of the eBike battery
- e** Unit of speed indicator<sup>A)</sup>
- f** Speed
- g** Navigation bar
- h** Motor output
- i** Your performance
- j** Average speed
- k** Performance evaluation

A) Can be changed via the **<Settings>** status page.

The **a ... d** indicators form the status bar and are shown on every page. If the speed is already being displayed on the screen itself, the **a** indicator will change to the current time in hours and minutes. The status bar displays:

- **Speed/time:** The current speed in km/h or mph or the current time
- **Assistance level:** Indicates the current level of assistance using a colour code
- **Light:** A symbol that indicates whether the light is on
- **eBike battery state of charge:** Indicates the current state of charge as a percentage

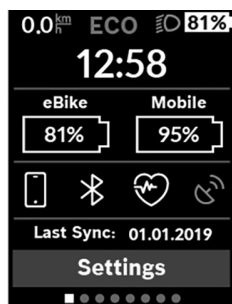
The performance evaluation **k** graphically displays your current speed (white bar) in comparison to your average speed **j**. The graphic shows you whether your current speed is faster or slower than your average speed (left of the black line = lower than average value; right of the black line = higher than average value).

The navigation bar **g** indicates which page you are on. Your current page is highlighted. You can use the **< (10)** and **> (8)** buttons to move to additional pages.

From the initial start page, you can access the status page via the **< (10)** button.



## Status screen



As well as the status bar, the status page also shows you the current time and the state of charge of all your eBike's batteries, as well as the state of charge of your smartphone battery if the smartphone is connected via *Bluetooth®*.

It may also display symbols to indicate an activated *Bluetooth®* function or a device connected via *Bluetooth®* (e.g. a heart-rate monitor). You will also be

shown the date of the most recent synchronisation between the smartphone and Kiox.

You can access the **<Settings>** from the bottom section.

### <Settings>

You can access the settings menu via the status page. The **<Settings>** cannot be accessed or changed while riding.

You can use the – (11) and + (12) buttons to select the setting you want. You can open the settings, as well as any additional submenus, using the select button (9). You can use the < button (10) to go back to the previous menu from any settings menu.

You can find the following superordinate sections on the first navigation level:

- **<Registration>** – Information about registration:  
This menu item is only displayed if you have not yet registered with eBike Connect.
- **<My eBike>** – Settings for your eBike  
You can reset the counters (such as the number of kilometres travelled that day or average values) to zero either automatically or manually, and you can reset the range. You can change the wheel circumference value that was preset by the manufacturer by ±5 %. If your eBike features **eShift**, you can also configure your eShift system here. The bicycle manufacturer or dealer may base the service date on the distance travelled and/or a period of time. The due date for the service is displayed under **<Next Service: DD. Mon. YYYY or at [xxxxx] [km]>**. The bike component page displays the serial number and hardware and software versions for each component in addition to other key data which is relevant for the components.
- **<My profile>** – Active user data
- **<Bluetooth>** – Switching the *Bluetooth®* function on or off:  
Connected devices are displayed.

- **<Sys settings>** – A list of setting options for your on-board computer  
You can display the speed and distance in kilometres or miles, display the clock in 12- or 24-hour format, adjust the time, date and time zone and select your preferred language. You can reset the Kiox to its factory settings, run a software update (if available) and choose between a black or white design.
- **<Information>** – Information about your Kiox  
Information on FAQs (frequently asked questions), certification, contact information, information on licences  
You can find a detailed description of each parameter in the online operating instructions at [www.Bosch-eBike.com/Kiox-manual](http://www.Bosch-eBike.com/Kiox-manual).

## Quick Menu

Selected settings are displayed on the **Quick Menu**. These settings can be changed even while riding.

You can access the **Quick Menu** via the select button (9). It cannot be accessed from the **Status screen**.

The following settings can be changed via the **Quick Menu**:

- **<Reset trip data?>**  
All data on the journey so far is reset to zero.
- **<eShift>**  
You can set the cadence here.
- **<eSuspension>**  
This is where you can set a manufacturer-defined shock absorption or suspension mode.

## Error code display

The eBike system's components are continuously and automatically monitored. If an error is detected, the corresponding error code is displayed on the on-board computer.

The drive may be automatically shut down, depending on the type of error. However, if you wish to continue cycling, you

will always be able to do so without assistance from the drive. Before undertaking any other journeys, the eBike should be checked.

► **Have all repairs performed only by an authorised bike dealer.**

Code	Cause	Corrective measures
410	One or more buttons of the on-board computer are disabled.	Check whether any buttons are stuck, e.g. as a result of dirt finding its way in. Clean the buttons if need be.
414	Operating unit connection problem	Have the connections checked
418	One or more buttons on the operating unit are disabled.	Check whether any buttons are stuck, e.g. as a result of dirt finding its way in. Clean the buttons if need be.
419	Configuration error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
422	Drive unit connection problem	Have the connections checked
423	eBike battery connection problem	Have the connections checked
424	Communication problem between components	Have the connections checked
426	Internal time-out error	Restart the system. If the problem persists, contact your Bosch eBike dealer. With this error, it is not possible to bring up the wheel circumference in the basic settings menu or to adjust it.
430	Internal battery of the on-board computer is flat (does not apply to BUI350)	Charge the on-board computer (in the holder or via the USB port)
431	Software version error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
440	Internal drive unit fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
450	Internal software error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
460	Error at USB port	Remove the cable from the USB port of the on-board computer. If the problem persists, contact your Bosch eBike dealer.
490	Internal fault of the on-board computer	Have the on-board computer checked
500	Internal drive unit fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
502	Bike light fault	Check the light and the associated wiring. Restart the system. If the problem persists, contact your Bosch eBike dealer.
503	Speed sensor fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
504	Speed signal distortion detected.	Check that the spoke magnet is positioned correctly, and adjust it if necessary. Check that nothing has been tampered with (tuning). Drive assistance is reduced.
510	Internal sensor fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
511	Internal drive unit fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
530	Battery fault	Switch off the eBike, remove the eBike battery and reinsert the eBike battery. Restart the system. If the problem persists, contact your Bosch eBike dealer.
531	Configuration error	Restart the system. If the problem persists, contact your Bosch eBike dealer.

Code	Cause	Corrective measures
540	Temperature error	The eBike is outside of the permissible temperature range. Switch off the eBike system and allow the drive unit to either cool down or heat up to the permissible temperature range. Restart the system. If the problem persists, contact your Bosch eBike dealer.
550	An impermissible load has been detected.	Remove the load. Restart the system. If the problem persists, contact your Bosch eBike dealer.
580	Software version error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
591	Authentication error	Switch off the eBike system. Remove the battery pack and reinsert it. Restart the system. If the problem persists, contact your Bosch eBike dealer.
592	Incompatible component	Use a compatible display. If the problem persists, contact your Bosch eBike dealer.
593	Configuration error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
595, 596	Communication error	Check the wiring to the drive and restart the system. If the problem persists, contact your Bosch eBike dealer.
602	Internal battery fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
603	Internal battery fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
605	Battery temperature error	The battery is outside of the permissible temperature range. Switch off the eBike system and allow the battery to either cool down or heat up to the permissible temperature range. Restart the system. If the problem persists, contact your Bosch eBike dealer.
606	External battery fault	Check the wiring. Restart the system. If the problem persists, contact your Bosch eBike dealer.
610	Battery voltage error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
620	Charger fault	Replace the charger. Contact your Bosch eBike dealer.
640	Internal battery fault	Restart the system. If the problem persists, contact your Bosch eBike dealer.
655	Multiple battery faults	Switch off the eBike system. Remove the battery pack and reinsert it. Restart the system. If the problem persists, contact your Bosch eBike dealer.
656	Software version error	Contact your Bosch eBike dealer so that they can perform a software update.
7xx	Error relating to third-party components	Observe the information in the operating instructions of the respective component manufacturer.
800	Internal ABS fault	Contact your Bosch eBike dealer.
810	Implausible signals from the wheel speed sensor	Contact your Bosch eBike dealer.
820	Fault in the wire to the front wheel speed sensor	Contact your Bosch eBike dealer.
821 to 826	Implausible signals from the front wheel speed sensor The sensor disc may be missing, defective or fitted incorrectly; there is a significant difference in diameter between the front wheel and the rear wheel; extreme riding	Restart the system and carry out a test ride lasting at least two minutes. The ABS indicator light must go out. If the problem persists, contact your Bosch eBike dealer.

Code	Cause	Corrective measures
	situation, e.g. riding solely on the rear wheel	
830	Fault in the wire to the rear wheel speed sensor	Contact your Bosch eBike dealer.
831 833 to 835	Implausible signals from the rear wheel speed sensor  The sensor disc may be missing, defective or fitted incorrectly; there is a significant difference in diameter between the front wheel and the rear wheel; extreme riding situation, e.g. riding solely on the rear wheel	Restart the system and carry out a test ride lasting at least two minutes. The ABS indicator light must go out. If the problem persists, contact your Bosch eBike dealer.
840	Internal ABS fault	Contact your Bosch eBike dealer.
850	Internal ABS fault	Contact your Bosch eBike dealer.
860, 861	Fault in the power supply	Restart the system. If the problem persists, contact your Bosch eBike dealer.
870, 871 880 883 to 885	Communication error	Restart the system. If the problem persists, contact your Bosch eBike dealer.
889	Internal ABS fault	Contact your Bosch eBike dealer.
890	ABS indicator light is defective or missing; ABS may not be working.	Contact your Bosch eBike dealer.
No display	Internal fault of the on-board computer	Restart your eBike system by switching it off and back on.

# Maintenance and servicing

## Maintenance and cleaning

Do not clean any of the components with pressurised water. Keep the screen of your on-board computer clean. Dirt can cause faulty brightness detection.

Clean your on-board computer using a soft cloth dampened only with water. Do not use cleaning products of any kind.

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

In addition, the bicycle dealer may base the service date on the distance travelled and/or on a period of time. In this case, the on-board computer displays a message telling you when the service date is due each time it is switched on.

Please have your eBike serviced and repaired by an authorised bicycle dealer.

► **Have all repairs performed only by an authorised bike dealer.**

## After-sales service and advice on using products

If you have any questions about the eBike system and its components, contact an authorised bicycle dealer.

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

## Transport

► **If you transport your eBike attached to the outside of your car, e.g. on a bike rack, remove the on-board computer and the eBike battery to avoid damaging them.**

## Disposal



The drive unit, on-board computer incl. operating unit, battery, speed sensor, accessories and packaging should be disposed of in an environmentally correct manner.

Do not dispose of eBikes and their components with household waste.



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

Please return Bosch eBike components that are no longer usable to an authorised bicycle dealer.

**Subject to change without notice.**

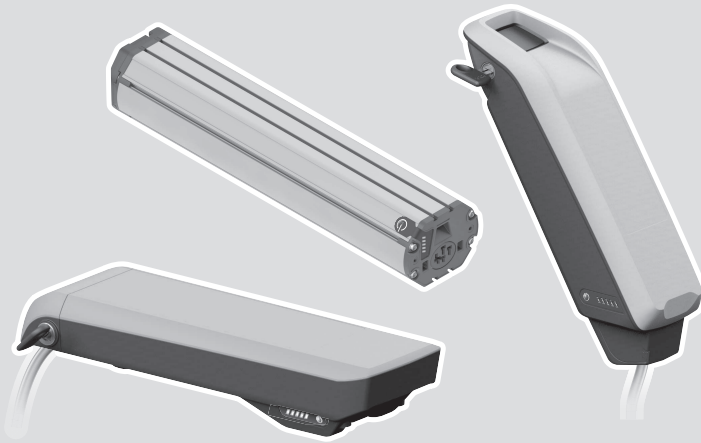




**BOSCH**

# PowerPack 300|400|500 PowerTube 400|500|625

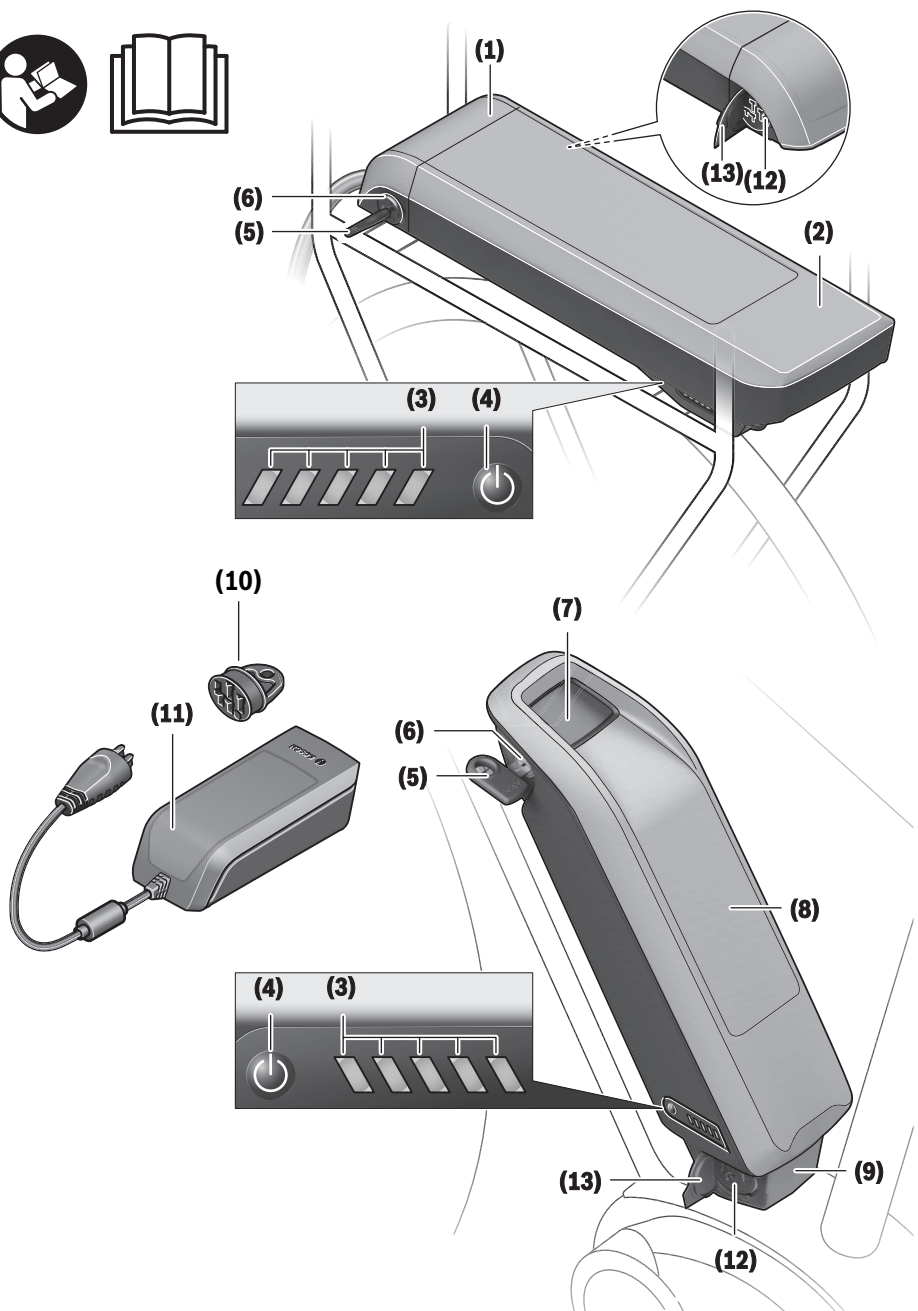
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BBP280 | BBP281 | BBP282 | BBP283 | BBP290 | BBP291



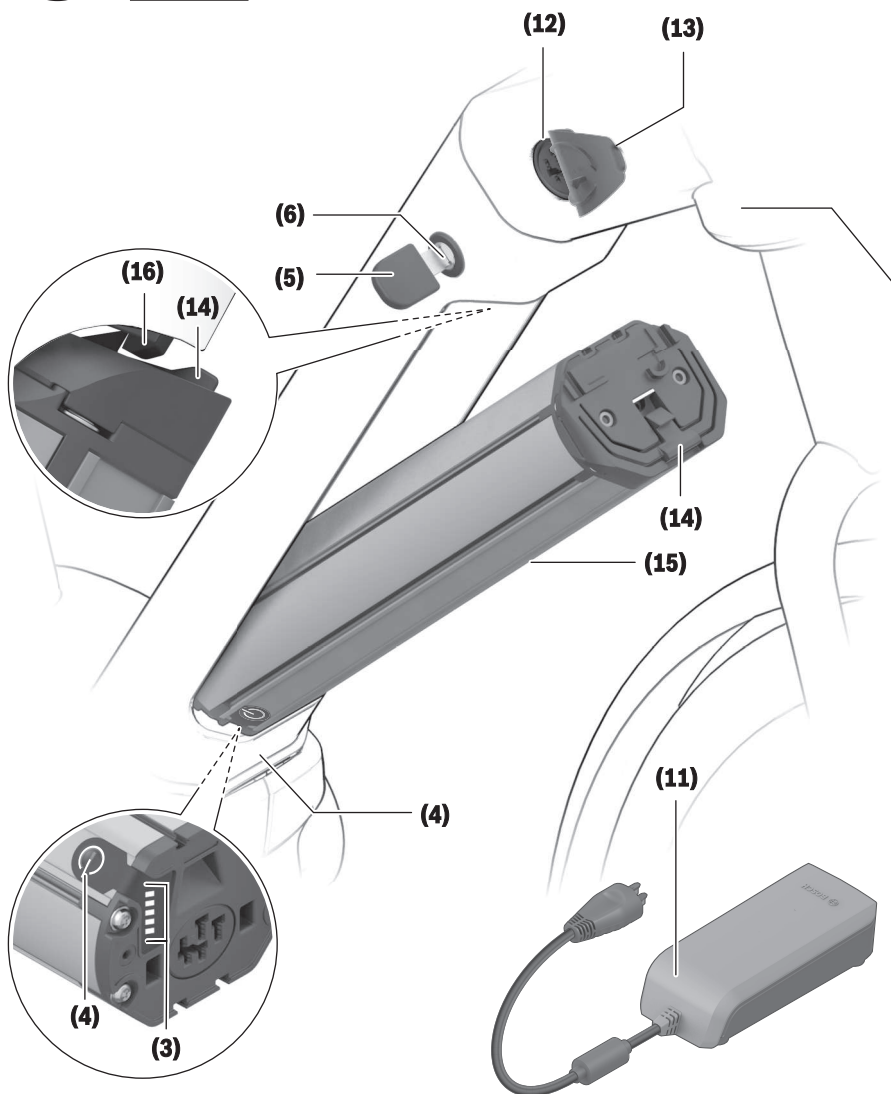
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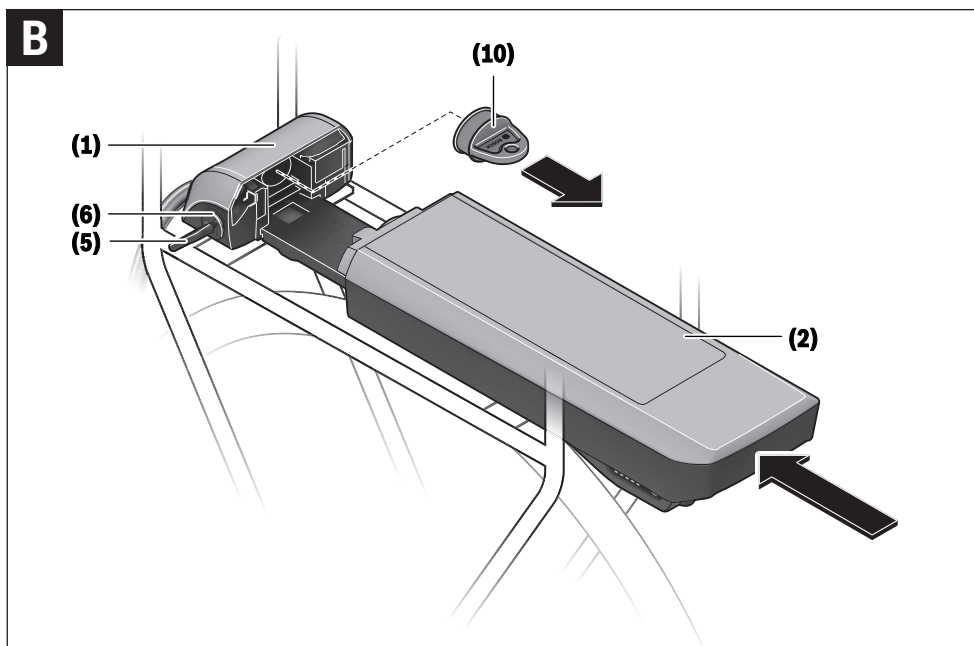
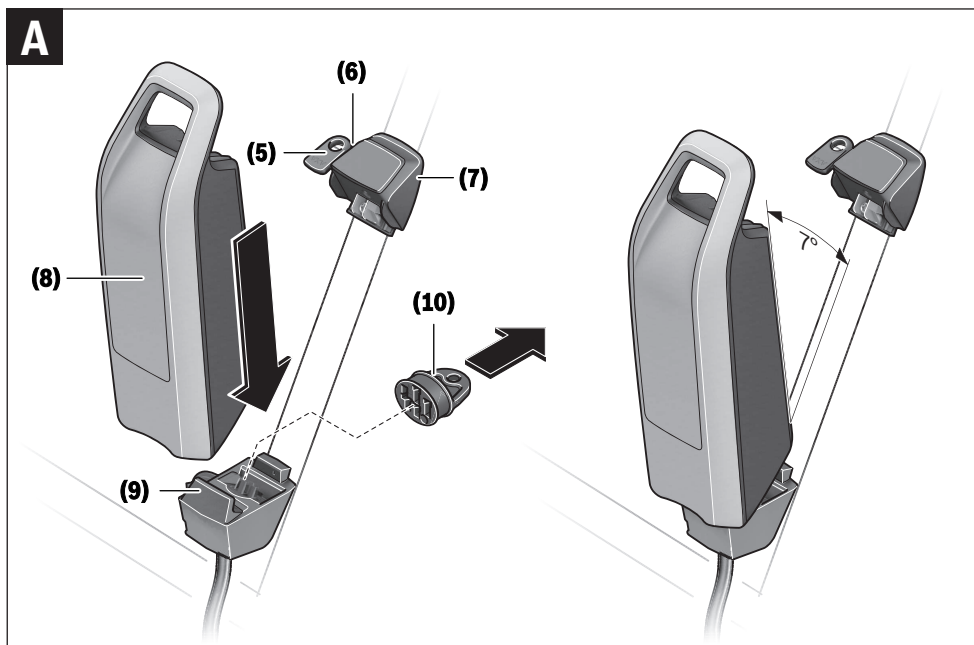
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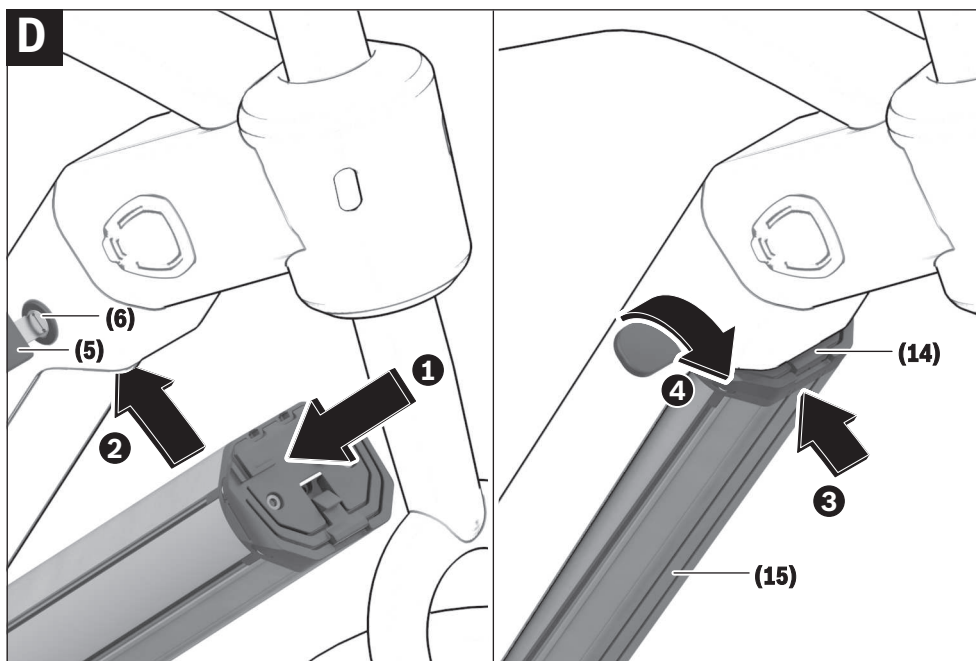
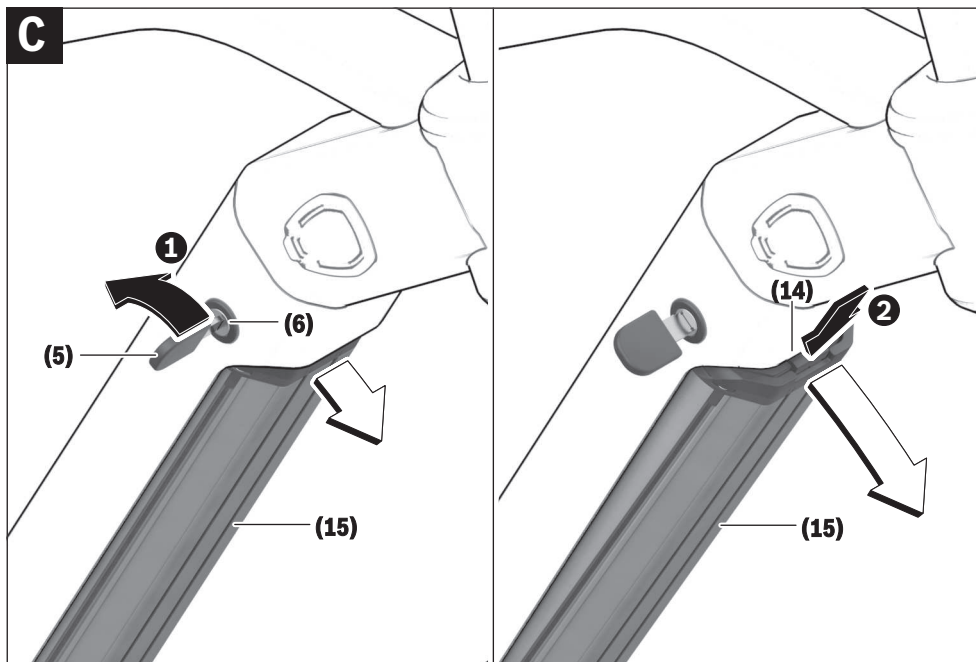














## Safety instructions



**Read all the safety and general instructions.** Failure to observe the safety and general instructions may result in electric shock, fire and/or serious injury.

The contents of lithium-ion battery cells are flammable under certain conditions. You must therefore ensure that you have read and understood the rules of conduct set out in these operating instructions.

**Save all safety warnings and instructions for future reference.**

The term **battery** is used in these instructions to mean all original Bosch eBike rechargeable battery packs.

- ▶ **Remove the battery from the eBike before beginning work (e.g. inspection, repair, assembly, maintenance, work on the chain, etc.) on the eBike, transporting it with a car or aeroplane, or storing it.** Unintentional activation of the eBike system poses a risk of injury.
- ▶ **Do not open the battery.** There is a risk of short-circuiting. Opening the battery voids any and all warranty claims.
- ▶ **Protect the battery against heat (e.g. prolonged sun exposure), fire and from being submerged in water. Do not store or operate the battery near hot or flammable objects.** There is a risk of explosion.
- ▶ **When the battery is not in use, keep it away from paper clips, coins, keys, nails, screws or other small metal objects that could make a connection from one terminal to another.** A short circuit between the battery terminals may cause burns or a fire. Short circuit damage which occurs in this instance voids any and all warranty claims against Bosch.
- ▶ **Avoid mechanical loads and exposure to high temperatures.** These can damage the battery cells and cause the flammable contents to leak out.
- ▶ **Do not place the charger or the battery near flammable materials. Ensure the battery is completely dry and placed on a fireproof surface before charging.** There is a risk of fire due to the heat generated during charging.
- ▶ **The eBike battery must not be left unattended while charging.**
- ▶ **If used incorrectly, liquid may leak from the battery. Contact with this liquid should be avoided. If contact occurs, rinse off with water. If the liquid comes into contact with your eyes, seek additional medical attention.** Liquid leaking from the battery may cause irritation or scalding.
- ▶ **Batteries must not be subjected to mechanical shock.** There is a risk of the battery being damaged.
- ▶ **The battery may give off fumes if it becomes damaged or is used incorrectly. Ensure the area is well ventilated and seek medical attention should you experi-**

**ence any adverse effects.** The fumes may irritate the respiratory system.

- ▶ **Only charge the battery using original Bosch chargers.** When using chargers that are not made by Bosch, the risk of fire cannot be excluded.
- ▶ **Use the battery only in conjunction with eBikes that have original Bosch eBike drive systems.** This is the only way in which you can protect the battery against dangerous overload.
- ▶ **Use only original Bosch batteries that the manufacturer has approved for your eBike.** Using other batteries can lead to injuries and pose a fire hazard. Bosch accepts no liability or warranty claims if other batteries are used.
- ▶ **Do not use the rack-mounted battery as a handle.** Lifting the eBike up by the battery can damage the battery.
- ▶ **Keep the battery away from children.**
- ▶ **Read and observe the safety warnings and directions contained in all the eBike system operating instructions and in the operating instructions of your eBike.**

The safety of both our customers and our products is important to us. Our eBike batteries are lithium-ion batteries which have been developed and manufactured in accordance with the latest technology. We comply with or exceed the requirements of all relevant safety standards. When charged, these lithium-ion batteries contain a high level of energy. If a fault occurs (which may not be detectable from the outside), in very rare cases and under unfavourable conditions, lithium-ion batteries can catch fire.

### Privacy notice

When you connect the eBike to the Bosch DiagnosticTool, data about the eBike batteries (e.g. temperature, cell voltage, etc.) is transferred to Bosch eBike Systems (Robert Bosch GmbH) for the purposes of product improvement. You can find more information about this on the Bosch eBike website at [www.bosch-ebike.com](http://www.bosch-ebike.com).

## Product description and specifications

### Intended Use

The Bosch eBike rechargeable batteries are intended exclusively for the power supply of your Bosch eBike drive unit and must not be used for any other purpose.

### Product features

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

All representations of bicycle parts, apart from the batteries and their holders, are schematic and may differ from those on your own eBike.

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

- (1) Rack-mounted battery holder
- (2) Rack-mounted battery
- (3) Operation/state of charge indicator
- (4) On/off button
- (5) Key for the battery lock
- (6) Battery lock
- (7) Upper standard battery holder

- (8) Standard battery
- (9) Lower standard battery holder
- (10) Cover (supplied only on eBikes with two battery packs)
- (11) Charger
- (12) Socket for charging connector
- (13) Charging socket cover
- (14) PowerTube battery safety restraint
- (15) PowerTube battery
- (16) PowerTube battery safety hook

## Technical data

Li-ion battery		PowerPack 300	PowerPack 400	PowerPack 500
Product code		BBS245 <sup>A)</sup> B) BBR245 <sup>B)</sup> C)	BBS265 <sup>A)</sup> BBR265 <sup>C)</sup>	BBS275 <sup>A)</sup> BBR275 <sup>C)</sup>
Rated voltage	V=	36	36	36
Nominal capacity	Ah	8.2	11	13.4
Energy	Wh	300	400	500
Operating temperature	°C	-5 to +40	-5 to +40	-5 to +40
Storage temperature	°C	+10 to +40	+10 to +40	+10 to +40
Permitted charging temperature range	°C	0 to +40	0 to +40	0 to +40
Weight, approx.	kg	2.5 <sup>A)</sup> /2.6 <sup>C)</sup>	2.5 <sup>A)</sup> /2.6 <sup>C)</sup>	2.6 <sup>A)</sup> /2.7 <sup>C)</sup>
Protection rating		IP 54 (dust- and splash-proof)	IP 54 (dust- and splash-proof)	IP 54 (dust- and splash-proof)

A) Standard battery

B) Cannot be used in combination with other batteries in systems with two batteries

C) Rack-mounted battery

Li-ion battery		PowerTube 400	PowerTube 500	PowerTube 625
Product code		BBP282 horizontal <sup>A)</sup> BBP283 vertical <sup>A)</sup>	BBP280 horizontal BBP281 vertical	BBP290 horizontal BBP291 vertical
Rated voltage	V=	36	36	36
Nominal capacity	Ah	11	13.4	16.7
Energy	Wh	400	500	625
Operating temperature	°C	-5 to +40	-5 to +40	-5 to +40
Storage temperature	°C	+10 to +40	+10 to +40	+10 to +40
Permitted charging temperature range	°C	0 to +40	0 to +40	0 to +40
Weight, approx.	kg	2.9	2.9	3.5
Protection rating		IP 54 (dust and splash-proof)	IP 54 (dust and splash-proof)	IP 54 (dust and splash-proof)

A) Cannot be used in combination with other batteries in systems with two batteries

## Fitting

### ► Ensure the battery is placed on clean surfaces only.

Avoid getting dirt, e.g. sand or soil, in the charging socket and contacts in particular.

## Testing the battery before using it for the first time

Test the battery before charging it for the first time or using it in your eBike.

To do this, press the on/off button **(4)** to switch the battery on. If none of the LEDs on the battery charge indicator **(3)** light up, the battery may be damaged.

If at least one (but not all) of the LEDs on the battery charge indicator **(3)** lights up, the battery will need to be fully charged before using it for the first time.

► **Do not charge or use batteries if they are damaged.**

Contact an authorised bicycle dealer.

## Charging the battery

► **A Bosch eBike battery must only be charged using an original Bosch eBike charger.**

**Note:** The battery is supplied partially charged. To ensure full battery capacity, fully charge the battery in the charger before using it for the first time.

To charge the battery, read and follow the instructions in the operating manual for the charger.

The battery can be charged at any state of charge. Interrupting the charging process does not damage the battery.

The battery has a temperature monitoring function which only allows it to be charged within a temperature range of **0 °C to 40 °C**.



If the temperature of the battery is outside this charging range, three of the LEDs on the battery charge indicator **(3)** will flash. Disconnect the battery from the charger and let it acclimatise.

Do not reconnect the battery to the charger until it has reached the correct charging temperature.

### Battery charge indicator

The five green LEDs on the battery charge indicator **(3)** indicate the battery's state of charge of when the battery is switched on.

Each LED represents approximately 20 % of the charging capacity. When the battery is fully charged, all five LEDs will be lit.

The battery's state of charge when switched on is also shown on the display of the on-board computer. Read and follow the instructions in the operating manuals for the drive unit and on-board computer.

If the battery capacity is less than 5 %, all the LEDs on the battery charge indicator **(3)** on the battery will go out. The display function of the on-board computer, however, will carry on working.

Once charging is complete, disconnect the battery from the charger and the charger from the mains.

## Using two batteries for one eBike (optional)

The manufacturer can also equip an eBike with two batteries. In this case, one of the charging sockets will not be accessible or it will have been sealed with a sealing cap by the bicycle manufacturer. Only charge the batteries via the charging socket that is accessible.

► **Never open charging sockets that have been sealed by the manufacturer.** Charging batteries via a charging socket that used to be sealed may cause irreparable damage.

If you want to use an eBike that is designed for two batteries with only one battery, cover the contacts of the unused socket using the cover **(10)** provided. Otherwise there is a risk that the exposed contacts will cause a short circuit (see figures A and B).

### Charging process for two batteries

If two batteries are fitted to an eBike, both batteries can be charged using the uncovered connection. To begin with, both batteries are charged one after the other until they reach approx. 80–90 % capacity, then they are both fully charged at the same time (the LEDs flash on both batteries). When the bike is in operation, power is drawn from both batteries on an alternating basis.

If you take the batteries out of the holders, you can charge each one individually.

### Charging with one battery fitted

If only one battery is fitted, you can only charge the battery that has the accessible charging socket on the bike. You can only charge the battery with the sealed charging socket if you take the battery out of the holder.

## Inserting and removing the battery

► **Always switch off the battery and the eBike system when inserting the battery into the holder or removing it from the holder.**

### Inserting and removing the standard battery (see figure A)

In order for the battery to be inserted, the key **(5)** must be inserted into the lock **(6)** and the lock must be open.

To **insert the standard battery (8)**, place it onto the contacts on the lower holder **(9)** on the eBike (the battery can be tilted towards the frame by up to 7°). Tilt it into the upper holder **(7)** as far as possible until you hear it click into place. Check that the battery is secure in all directions. Always secure the battery by closing the lock **(6)** – otherwise the lock may open and the battery may fall out of the holder.

Always remove the key **(5)** from the lock **(6)** after closing it. This prevents both the key from falling out and the battery from being removed by unauthorised third parties when the eBike is not in use.

To **remove the standard battery (8)**, switch it off and open the lock using the key **(5)**. Tilt the battery out of the upper holder **(7)** and pull it out of the lower holder **(9)**.

### Inserting and removing the rack-mounted battery (see figure B)

In order for the battery to be inserted, the key **(5)** must be inserted into the lock **(6)** and the lock must be open.

To **insert the rack-mounted battery (2)**, slide it contacts-first into the holder **(1)** on the rack until you hear it click into place.

Check that the battery is secure in all directions. Always secure the battery by closing the lock **(6)** – otherwise the lock may open and the battery may fall out of the holder.

Always remove the key **(5)** from the lock **(6)** after closing it. This prevents both the key from falling out and the battery

from being removed by unauthorised third parties when the eBike is not in use.

To **remove the rack-mounted battery (2)**, switch it off and open the lock using the key **(5)**. Pull the battery out of the holder **(1)**.

### Removing the PowerTube battery (see figure C)

- ❶ To remove the PowerTube battery **(15)**, open the lock **(6)** using the key **(5)**. The battery will be unlocked and fall into the safety restraint **(14)**.
- ❷ Press on the safety restraint from above. The battery will be unlocked completely and fall into your hand. Pull the battery out of the frame.

**Note:** As a result of **varying** designs, the battery may need to be inserted and removed using a different method. Read the operating instructions of the eBike manufacturer.

### Inserting the PowerTube battery (see figure D)

In order for the battery to be inserted, the key **(5)** must be inserted into the lock **(6)** and the lock must be open.

- ❶ To insert the PowerTube battery **(15)**, place it so that its contacts are in the lower holder of the frame.
- ❷ Push the battery upwards until it is held by the safety restraint **(14)**.
- ❸ Hold the lock open with the key and press the battery upwards until you hear it click into place. Check that the battery is secure in all directions.
- ❹ Always secure the battery by closing the lock **(6)** – otherwise the lock may open and the battery may fall out of the holder.

Always remove the key **(5)** from the lock **(6)** after locking it. This prevents both the key from falling out and the battery from being removed by unauthorised third parties when the eBike is not in use.

## Operation

### Start-up

► **Use only original Bosch batteries that the manufacturer has approved for your eBike.** Using other batteries can lead to injuries and pose a fire hazard. Bosch accepts no liability or warranty claims if other batteries are used.

### Switching on/off

Switching on the battery is one way to switch on the eBike system. Read and follow the instructions in the operating manuals for the drive unit and on-board computer.

Before switching on the battery, i.e. the eBike system, make sure that the lock **(6)** is closed.

To **switch on** the battery, press the on/off button **(4)**. Do not use any sharp or pointed objects to press the button. The LEDs on the indicator **(3)** will light up, indicating the battery's state of charge at the same time.

**Note:** If the battery capacity is less than 5 %, none of the LEDs on the battery charge indicator **(3)** will light up.

Whether the eBike system is switched on is only visible on the on-board computer.

To **switch off** the battery, press the on/off button **(4)** again. The LEDs on the indicator **(3)** will go out. This will also switch the eBike system off.

If no power is drawn from the eBike drive for about 10 minutes (e.g. because the eBike is not moving) and no button is pressed on the on-board computer or the operating unit of the eBike, the eBike system, and therefore also the battery, will switch off automatically to save energy.

The battery is protected against deep discharge, overloading, overheating and short-circuiting by the "Electronic Cell Protection (ECP)". In the event of danger, a protective circuit switches the battery off automatically.



If a fault is detected in the battery, two of the LEDs on the battery charge indicator **(3)** will flash. Contact an authorised bicycle dealer if this happens.

### Recommendations for optimal handling of the battery

The service life of the battery can be extended if it is looked after well and especially if it is stored at the correct temperature.

As it ages, however, the capacity of the battery will diminish, even with good care.

A significantly reduced operating time after charging indicates that the battery has deteriorated. You can replace the battery.

### Recharging the battery before and during storage

When you are not going to use the battery for an extended period (longer than three months), store it at a state of charge of around 30 % to 60 % (when two to three of the LEDs on the battery charge indicator **(3)** are lit).

Check the state of charge after six months. If only one of the LEDs on the battery charge indicator **(3)** is lit, charge the battery back up to around 30 % to 60 %.

**Note:** If the battery is stored with no charge for an extended period of time, it may become damaged despite the low self-discharge and the battery capacity could be significantly reduced.

Leaving the battery permanently connected to the charger is not recommended.

### Storage conditions

If possible, store the battery in a dry, well-ventilated place. Protect it against moisture and water. When the weather conditions are bad, it is advisable to remove the battery from the eBike and store it in a closed room until you use it next, for example.

Store the eBike batteries in the following locations:

- In a room with a smoke alarm
- Away from combustible or easily flammable objects
- Away from heat sources



Store the batteries at temperatures between **10 °C** and **20 °C**. Never store them at temperatures below **-10 °C** or above **60 °C**.

Make sure that the maximum storage temperature is not exceeded. Do not leave the battery in your car in the summer, for example, and store it away from direct sunlight.

Leaving the battery on the bicycle for storage is not recommended.

### Action in the event of a fault

The Bosch eBike rechargeable battery must not be opened, including for repairs. There is a risk of the Bosch eBike rechargeable battery catching fire, e.g. as a result of a short circuit. This risk continues to apply on any Bosch eBike rechargeable battery **ever** opened, even at a later point in time.

In the event of a fault, do not have your Bosch eBike rechargeable battery repaired; instead, have it replaced with an original Bosch eBike rechargeable battery by your specialist retailer.

## Maintenance and servicing

### Maintenance and cleaning

- **The battery must not be submerged in water or cleaned using a jet of water.**

Keep the battery clean. Clean it carefully with a soft, damp cloth.

Clean and lightly grease the connector pins occasionally.

Please contact an authorised bicycle dealer if the battery is no longer working.

### After-sales service and advice on using products

If you have any questions about the batteries, contact an authorised bicycle dealer.

- **Note down the key manufacturer and number on the key (5).** Contact an authorised bicycle dealer if you lose the key. Give them the name of the key manufacturer and the number on the key.

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

### Transport

- **If you transport your eBike attached to the outside of your car, e.g. on a bike rack, remove the on-board computer and the eBike battery to avoid damaging them.**

The batteries are subject to legislation on the transport of dangerous goods. Private users can transport undamaged batteries by road without having to comply with additional requirements.

When batteries are transported by commercial users or third parties (e.g. air transport or forwarding agency), special requirements on packaging and labelling (e.g. ADR regulations) must be met. When preparing items for shipping, a dangerous goods expert can be consulted as required.

Do not ship batteries if the housing is damaged or the rechargeable battery is not fully functional. Use only the original Bosch packaging for transport. Apply tape over exposed contacts and pack the battery such that it cannot move around inside the packaging. Inform your parcel service that the package contains dangerous goods. Please also observe any additional national regulations should these exist.

If you have any questions about transporting the batteries, contact an authorised bicycle dealer. You can also order suitable transport packaging from the dealer.

### Disposal



Batteries, accessories and packaging should be recycled in an environmentally friendly manner.

Do not dispose of batteries along with household waste.

Apply tape over the contact surfaces of the battery terminals before disposing of batteries.

Do not touch severely damaged eBike batteries with your bare hands – electrolyte may escape and cause skin irritation. Store the defective battery in a safe location outdoors. Cover the terminals if necessary and inform your dealer. They will help you to dispose of it properly.



In accordance with Directive 2012/19/EU and Directive 2006/66/EC respectively, electronic devices that are no longer usable and defective/damaged batteries must be collected separately and recycled in an environmentally friendly manner.

Please return batteries that are no longer usable to an authorised bicycle dealer.



#### Li-ion:

Please observe the information in the section on (see "Transport", page English – 5).

**Subject to change without notice.**

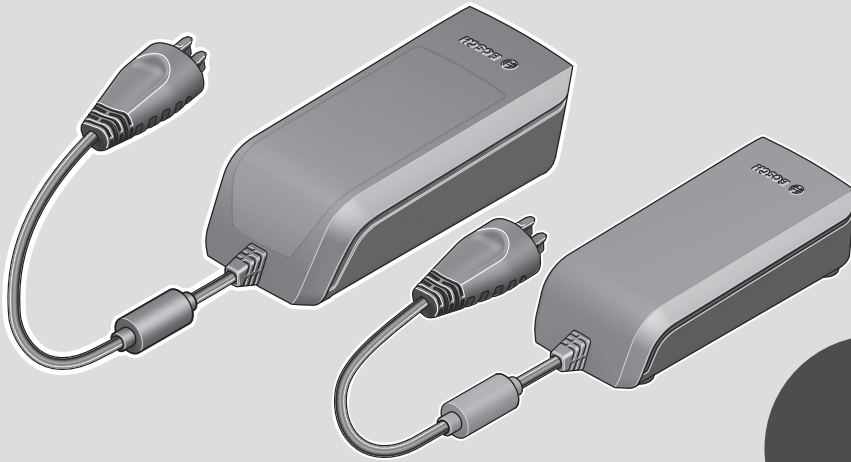




**BOSCH**

# Charger

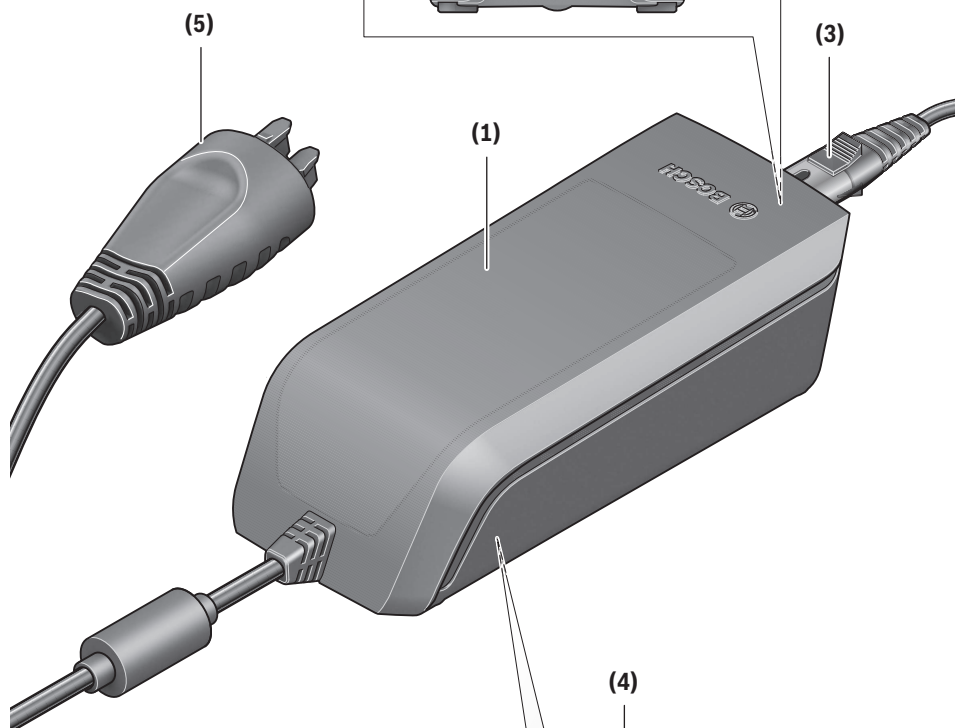
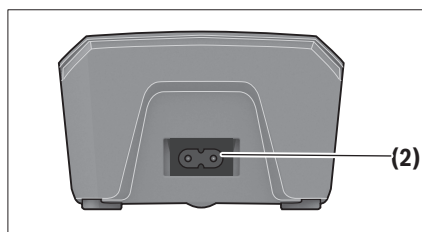
BCS220 | BCS230 | BCS250



5

***GHOST***





**Standard Charger**  
**Fast Charger**

**eBike Battery Charger 36-4/230**

**0 275 007 907**

Input: 230V ~ 50Hz 1.5A

Output: 36V --- 4A

Made in

Robert Bosch GmbH

72757 Reutlingen

Germany

**Standard Charger BCS220**

Li-Ion

Use ONLY with BOSCH Li-Ion batteries



**eBike Battery Charger 36-6/230**

**0 275 007 918**

Input: 230V ~ 50Hz 2.15A

Output: 36V --- 6A

Made in

Robert Bosch GmbH

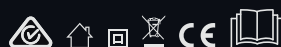
72757 Reutlingen

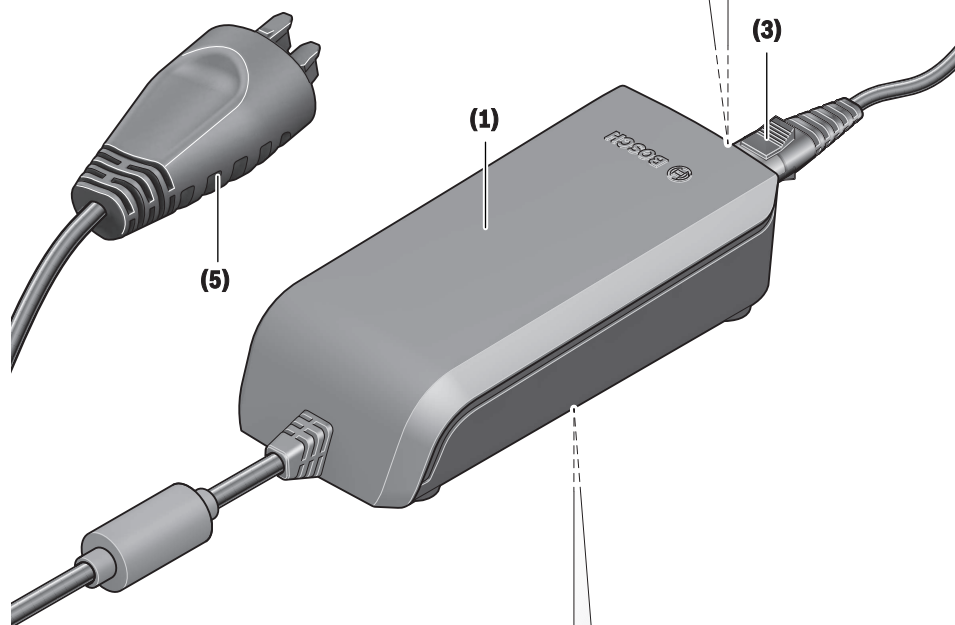
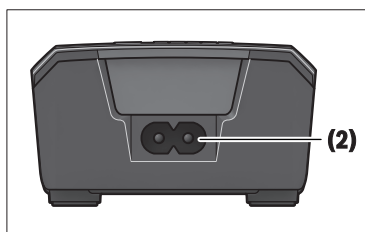
Germany

**Fast Charger BCS250**

Li-Ion

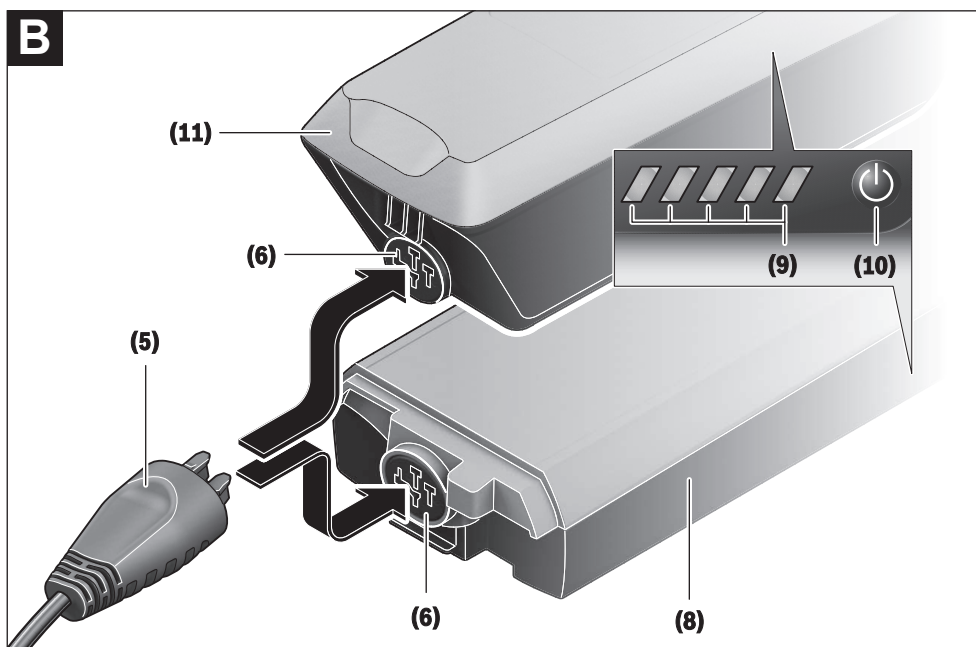
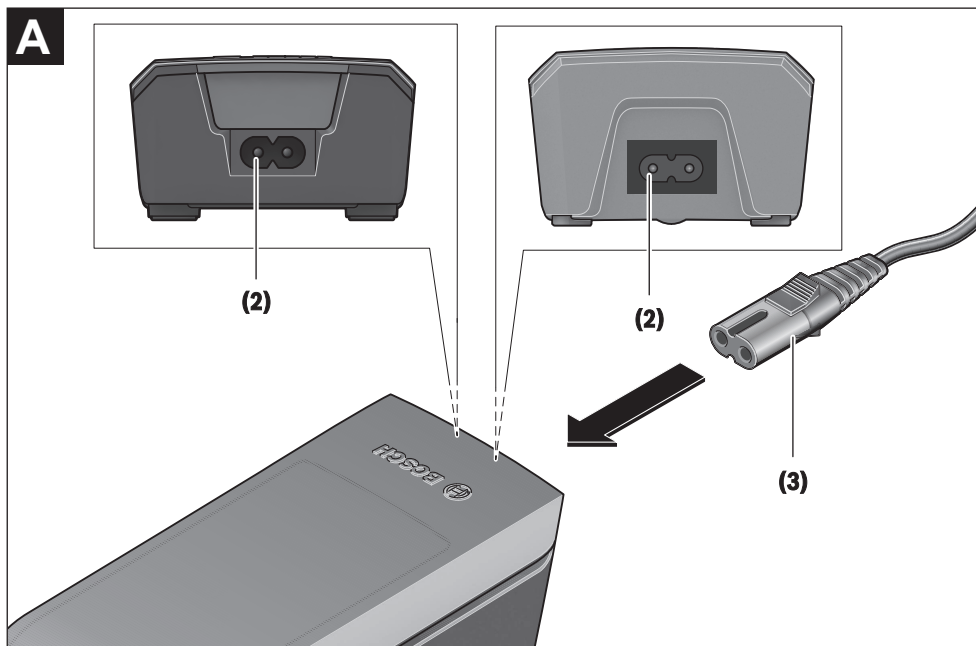
Use ONLY with BOSCH Li-Ion batteries

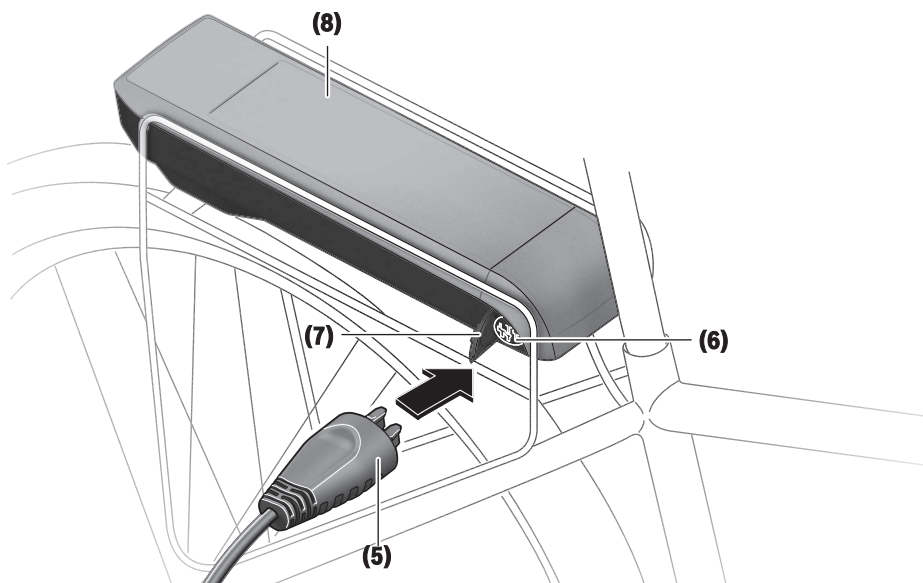
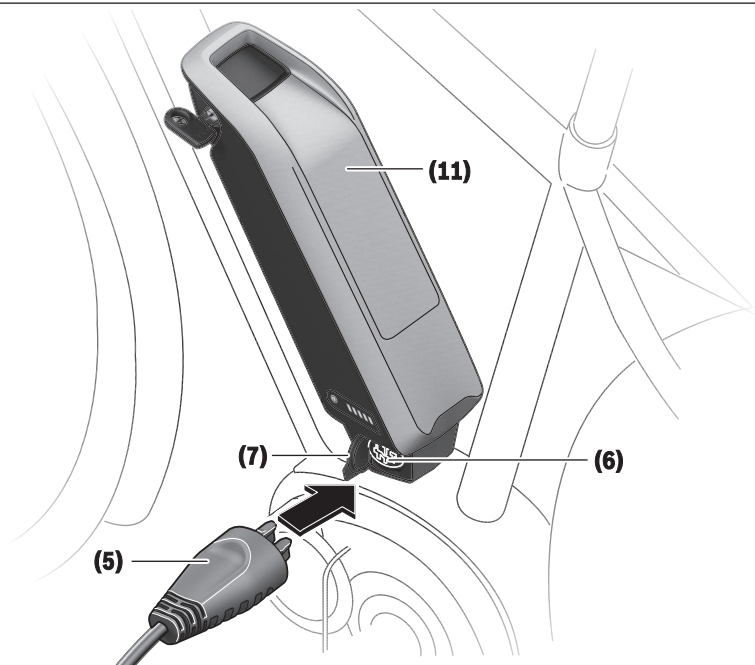


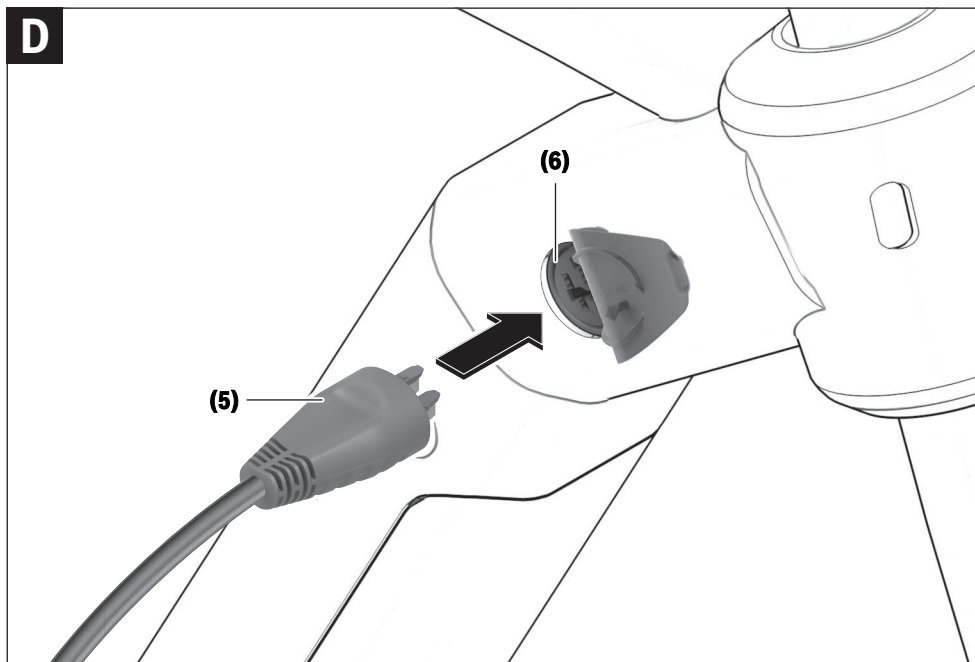


## Compact Charger

<p>eBike Battery Charger 36-2/100-240 0 275 007 915 Compact Charger BCS230 Input: 100-240V ~ 50/60Hz 1.6A Output: 36V ~ 2A Made in China Robert Bosch GmbH 72757 Reutlingen Germany</p> <p>BFP</p> <p>CE</p> <p>UL CERTIFIED eT20204</p> <p>Energy Verified</p>	<p>This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.</p> <p><b>WARNING</b> For safe operation see manual. Risk of electric shock. Indoor use only. Charge only batteries of the Bosch eBike Systems. Other batteries may burst causing personal damage. Do not replace the plug assembly as risk of fire or electric shock may result.</p> <p><b>ADVERTENCIA</b> Para un funcionamiento con seguridad, ver el manual Peligro de descarga eléctrica. Utilice únicamente en lugares secos. Cargar únicamente baterías de sistemas eBike de Bosch. Otras baterías podrían reventar, causando lesiones personales y daños. No reemplace el ensamblaje del enchufe, ya que el resultado puede ser riesgo de incendio o sacudidas eléctricas.</p> <p><b>AVERTISSEMENT</b> Pour un fonctionnement sûr, reportez-vous au manuel. Risque de choc électrique. Utiliser en lieu sec eBike de Bosch. D'autres batteries risquent d'exploser et de causer des blessures corporelles et des dommages. Ne pas remplacer la connectique car un risque d'incendie ou de choc électrique pourrait en résulter.</p> <p><b>Li-Ion USE ONLY with BOSCH Li-Ion batteries</b></p>
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**C**

**D**



## Safety instructions



**Read all the safety and general instructions.** Failure to observe the safety and general instructions may result in electric shock,

fire and/or serious injury.

**Save all safety warnings and instructions for future reference.**

The term **battery** is used in these instructions to mean all original Bosch eBike rechargeable battery packs.



**Do not expose the charger to rain or wet conditions.** If water enters a charger, there is a risk of electric shock.

- ▶ **Charge only Bosch lithium-ion batteries that are approved for use in eBikes. The battery voltage must match the battery charging voltage of the charger.** Otherwise there is a danger of fire and explosion.
- ▶ **Keep the charger clean.** Dirt poses a risk of electric shock.
- ▶ **Always check the charger, cable and plug before use. Stop using the charger if you discover any damage. Do not open the charger.** Damaged chargers, cables and plugs increase the risk of electric shock.
- ▶ **Do not operate the charger on an easily ignited surface (e.g. paper, textiles, etc.) or in a flammable environment.** There is a risk of fire due to the charger heating up during operation.
- ▶ **Take care if you touch the charger while it is charging. Wear protective gloves.** The charger can get very hot, especially when the ambient temperature is high.
- ▶ **The battery may give off fumes if it becomes damaged or is used incorrectly. Ensure the area is well ventilated and seek medical attention should you experience any adverse effects.** The fumes may irritate the respiratory system.
- ▶ **The eBike battery must not be left unattended while charging.**
- ▶ **Supervise children during use, cleaning and maintenance.** This will ensure that children do not play with the charger.
- ▶ **Children or persons who, owing to their physical, sensory or mental limitations or to their lack of experience or knowledge, are not capable of safely operating the charger may only use this charger under supervision or after having been instructed by a responsible person.** Otherwise, there is a danger of operating errors and injuries.
- ▶ **Read and observe the safety warnings and directions contained in all the eBike system operating instructions and in the operating instructions of your eBike.**
- ▶ A sticker in English is adhered to the bottom of the charger (marked **(4)** in the diagram on the graphics page). This says: Use ONLY with BOSCH lithium-ion batteries.

## Product description and specifications

### Intended Use

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

The Bosch eBike chargers are intended exclusively for charging Bosch eBike batteries and must not be used for any other purpose.

### Product features

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

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

- (1) Charger
- (2) Device socket
- (3) Device connector
- (4) Charger safety instructions
- (5) Charging connector
- (6) Socket for charging connector
- (7) Charging socket cover
- (8) Rack-mounted battery
- (9) Operation/state of charge indicator
- (10) Battery on/off button
- (11) Standard battery

## Technical data

Charger		Standard charger (36–4/230)	Compact charger (36–2/100-230)	Fast charger (36–6/230)
Product code		BCS220	BCS230	BCS250
Rated voltage	V~	207 to 264	90 to 264	207 to 264
Frequency	Hz	47 to 63	47 to 63	47 to 63
Battery charging voltage	V=	36	36	36
Charging current (max.)	A	4	2	6 <sup>A)</sup>
Charging time				
– PowerPack 300, approx.	hrs	2.5	5	2
– PowerPack 400, approx.	hrs	3.5	6.5	2.5
– PowerPack 500, approx.	hrs	4.5	7.5	3
Operating temperature	°C	0 to +40	0 to +40	0 to +40
Storage temperature	°C	+10 to +40	+10 to +40	+10 to +40
Weight, approx.	kg	0.8	0.6	1.0
Protection rating		IP 40	IP 40	IP 40

A) The charging current is limited to 4 A for the PowerPack 300 and for Classic+ Line batteries.

The specifications apply to a rated voltage [U] of 230 V. These specifications may vary at different voltages and in country-specific models.

## Operation

### Start-up

#### Connecting the charger to the mains (see figure A)

► **Pay attention to the mains voltage.** The voltage of the power source must match the voltage specified on the rating plate of the charger. Chargers marked 230 V can also be operated at 220 V.

Plug the device connector **(3)** of the power cable into the device socket **(2)** on the charger.

Connect the power cable (country-specific) to the mains.

#### Charging the removed battery (see figure B)

Switch the battery off and remove it from its holder on the eBike. When doing so, read and observe the operating instructions of the battery.

#### ► Ensure the battery is placed on clean surfaces only.

Avoid getting dirt, e.g. sand or soil, in the charging socket and contacts in particular.

Plug the charging connector **(5)** of the charger into the socket **(6)** on the battery.

#### Charging the battery on the bike (see figures C and D)

Switch the battery off. Clean the cover of the charging socket **(7)**. Avoid getting dirt, e.g. sand or soil, in the charging socket and contacts in particular. Lift the cover of the charging socket **(7)** and plug the charging connector **(5)** into the charging socket **(6)**.

► **There is a risk of fire due to the charger heating up during charging. Ensure the battery on the bike is completely dry and placed on a fireproof surface before charging.** If this is not possible, remove the battery from the holder and charge it in a more suitable location.

When doing so, read and observe the operating instructions of the battery.

### Charging process for two batteries

If two batteries are fitted to an eBike, both batteries can be charged using the uncovered connection. To begin with, both batteries are charged one after the other until they reach approx. 80–90 % capacity, then they are both fully charged at the same time (the LEDs flash on both batteries). When the bike is in operation, power is drawn from both batteries on an alternating basis.

If you take the batteries out of the holders, you can charge each one individually.

### Charging process

The charging process begins as soon as the charger is connected to the battery or charging socket on the bike and to the mains.

**Note:** The charging process is only possible when the temperature of the eBike battery is within the permitted charging temperature range.

**Note:** The drive unit is deactivated during the charging process.

The battery can be charged with and without the on-board computer. When charging without the on-board computer, the charging procedure can be observed on the battery charge indicator.

When the on-board computer is connected, a charging notification appears on the display.

The state of charge is displayed by the battery charge indicator **(9)** on the battery and by the bars on the on-board computer.

The LEDs on the battery charge indicator **(9)** flash during the charging process. Each solid illuminated LED represents ap-

proximately 20 % of the charging capacity. The flashing LED indicates the next 20 % currently charging.

Once the eBike battery is fully charged, the LEDs go out immediately and the on-board computer is switched off. The charging process is terminated. The state of charge can be displayed for three seconds by pressing the on/off button **(10)** on the eBike battery.




Disconnect the charger from the mains and the battery from the charger.

When the battery is disconnected from the charger, the battery is automatically switched off.

**Note:** If you have charged the battery on the bike, carefully close the charging socket **(6)** with the cover **(7)** after charging, so that no dirt or water can get in.

If the charger is not disconnected from the battery after charging, after a few hours the charger will switch itself back on, check the state of charge of the battery and begin the charging procedure again if necessary.

## Errors – causes and corrective measures

Cause	Corrective measures
 <p>Battery defective</p>	<p><b>Two LEDs flash on the battery.</b></p> <p>Contact an authorised bike dealership.</p>
 <p>Battery too warm or too cold</p>	<p><b>Three LEDs flash on the battery.</b></p> <p>Disconnect the battery from the charger until the charging temperature range has been reached.</p> <p>Do not reconnect the battery to the charger until it has reached the correct charging temperature.</p>
 <p>The charger is not charging.</p>	<p><b>No LEDs flashing (one or more LEDs will remain permanently lit depending on the state of charge of the eBike battery).</b></p> <p>Contact an authorised bike dealership.</p>
<b>Charging not possible (no indicator on battery)</b>	
Connector not attached properly	Check all connections.
Battery contacts dirty	Carefully clean the battery contacts.
Plug socket, cable or charger defective	Check the mains voltage, have the charger checked over by a bike dealership.
Battery defective	Contact an authorised bike dealership.

## Maintenance and servicing

### Maintenance and cleaning

If the charger fails, please contact an authorised bike dealership.

### After-sales service and advice on using products

If you have any questions about the charger, contact an authorised bike dealership.

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

### Disposal

Chargers, accessories and packaging should be recycled in an environmentally friendly manner.

Do not dispose of chargers along with household waste.

**Only for EU countries:**



According to the European Directive 2012/19/ EU on Waste Electrical and Electronic Equipment and its implementation into national law, chargers that are no longer usable must be collected separately and disposed of in an environmentally friendly manner.

**Subject to change without notice.**





**BOSCH**

# Drive Units

BDU310 | BDU350 | BDU365

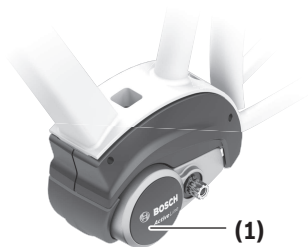


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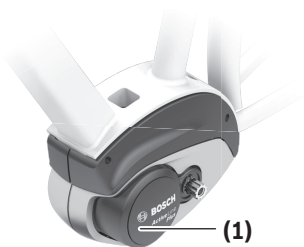
**Active Line/Active Line Plus/Performance Line**

***GHOST***

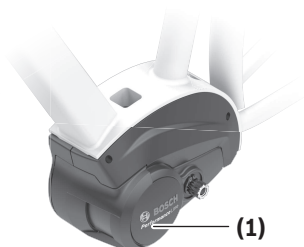




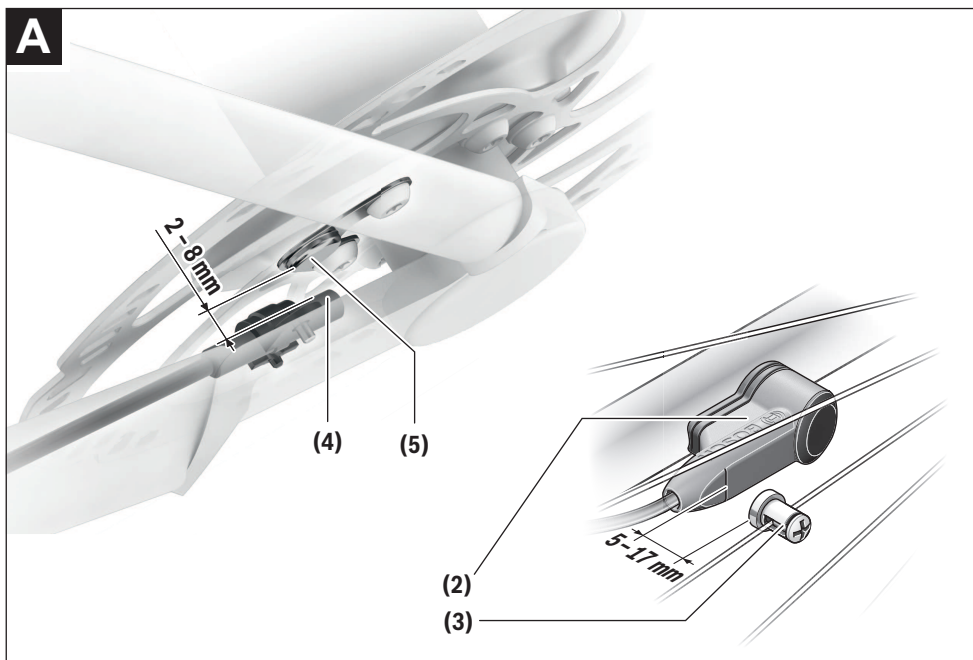
**Active Line**  
BDU310



**Active Line Plus**  
BDU350



**Performance Line**  
BDU365



## Safety instructions



**Read all the safety information and instructions.** Failure to observe the safety information and follow instructions may result in electric shock, fire and/or serious injury.

**Save all safety warnings and instructions for future reference.**

The term **battery** is used in these instructions to mean all original Bosch eBike rechargeable battery packs.

- ▶ **Do not attempt to change – and especially increase – the power of your drive or the maximum speed that it supports.** Doing this may put yourself and others at risk, and you may also breach statutory regulations.
- ▶ **Do not make any modifications to your eBike system or fit any other products that might increase the performance of your eBike system.** Doing so will generally reduce the service life of the system and risks damaging the drive unit and the bike. You also run the risk of losing the guarantee and warranty claims on the bicycle you have purchased. By handling the system improperly you are also endangering your safety and that of other road users, thus running the risk of high personal liability costs and possibly even criminal prosecution in the event of accidents that can be attributed to manipulation of the bicycle.
- ▶ **Do not open the drive unit yourself. The drive unit must only be repaired by qualified personnel using only original spare parts.** This will ensure that the safety of the drive unit is maintained. Unauthorised opening of the drive unit will render warranty claims null and void.
- ▶ **All components fitted to the drive unit and all other components of the eBike drive (e.g. chainring, chainring receptacle, pedals) 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.
- ▶ **Remove the battery from the eBike before beginning work (e.g. inspection, repair, assembly, maintenance, work on the chain, etc.) on the eBike, transporting it with a car or aeroplane, or storing it.** Unintentional activation of the eBike system poses a risk of injury.
- ▶ **The eBike system can be activated by pushing the eBike backwards or by turning the pedals backwards.**
- ▶ **The push assistance function must only be used when pushing the eBike.** There is a risk of injury if the wheels of the eBike are not in contact with the ground while using the push assistance.
- ▶ **When the push assistance is activated, the pedals may turn at the same time.** When the push assistance function is activated, make sure that there is enough space between your legs and the turning pedals to avoid the risk of injury.



**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
  - Assistance 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 batteries that the manufacturer has approved for your eBike.** Using other batteries can lead to injuries and pose a fire hazard. Bosch accepts no liability or warranty claims if other batteries are used.
- ▶ **Observe all national regulations which set out the approved use of eBikes.**
- ▶ **Read and observe the safety warnings and directions contained in all the eBike system operating instructions and in the operating instructions of your eBike.**

### Privacy notice

When you connect the eBike to the Bosch DiagnosticTool, data about the eBike drive unit (e.g. energy consumption, temperature, etc.) is transferred to Bosch eBike Systems (Robert Bosch GmbH) for the purpose of product improvement. You can find more information about this on the Bosch eBike website at [www.bosch-ebike.com](http://www.bosch-ebike.com).

# Product description and specifications

## Intended use

The drive unit 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.

## Technical data

Drive unit		Active Line	Active Line Plus	Performance Line
Product code		BDU310	BDU350	BDU365
Continuous rated power	W	250	250	250
Torque at drive, max.	Nm	40	50	65
Rated voltage	V=	36	36	36
Operating temperature	°C	-5 to +40	-5 to +40	-5 to +40
Storage temperature	°C	+10 to +40	+10 to +40	+10 to +40
Protection rating		IP 54	IP 54	IP 54
Weight, approx.	kg	2.9	3.2	3.2

The Bosch eBike system uses FreeRTOS (see <http://www.freertos.org>).

Bicycle lights <sup>A)</sup>			
Voltage approx. <sup>B)</sup>		V=	12
Maximum power			
– Front light		W	17.4
– Tail light		W	0.6

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

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

**Inserting a bulb incorrectly can cause it to blow.**

## Assembly

### Inserting and removing the battery

For inserting and removing the eBike battery in/from the eBike, please read and observe the battery operating instructions.

### Checking the speed sensor (see figure A)

#### Speedsensor (standard)

The speed sensor **(2)** and its spoke magnet **(3)** must be fitted such that the spoke magnet moves past the speed sensor at a distance of at least 5 mm and at most 17 mm with each rotation of the wheel.

**Note:** If the distance between the speed sensor **(2)** and the spoke magnet **(3)** is too small or too large, or if the speed

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
- (3)** Speed sensor spoke magnet
- (4)** Speedsensor (slim)<sup>A)</sup>
- (5)** Magnet<sup>B)</sup>

A) different sensor type and installation position is possible

B) different installation position is possible

sensor **(2)** is not properly connected, the speedometer display will fail and the eBike drive unit will operate in emergency mode.

Should this occur, loosen the screw of the spoke magnet **(3)** and fasten the spoke magnet to the spoke such that it runs past the marking on the speed sensor at the correct clearance. If the speed is still not being indicated on the speedometer display after doing this, please contact an authorised bicycle dealer.

#### Speedsensor (slim)

The speedsensor (slim) **(4)** and its magnet **(5)** must be mounted 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 8 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.

## Operation

### Start-up

#### Requirements

The eBike system can only be activated when the following requirements are met:

- A sufficiently charged battery is inserted (see battery operating instructions).
- The on-board computer is properly inserted in the holder (see on-board computer operating instructions).
- The speed sensor is correctly connected (see "Checking the speed sensor (see figure A)", page English – 2).

#### Switching the eBike system on/off

The following options are available for **switching on** the eBike system:

- If the on-board computer is already switched on when you insert it into the holder, the eBike system will be activated automatically.
- Once the on-board computer and the eBike battery are fitted, briefly press the on/off button on the on-board computer.
- With the on-board computer inserted, push the on/off button on the eBike battery (bicycle manufacturer-specific solutions are possible when there is no access to the battery on/off button; see the battery operating instructions).

The drive is activated as soon as you start pedalling (except if you are using the push-assistance function, Switching the push assistance on/off). The motor output depends on the settings of the assistance level on the on-board computer.

As soon as you stop pedalling when in normal operation, or as soon as you have reached a speed of **25 km/h**, the eBike drive switches off the assistance. The drive is automatically reactivated as soon you start pedalling again and the speed is below **25 km/h**.

The following options are available for **switching off** the eBike system:

- Press the on/off button of the on-board computer.
- Switch off the eBike battery using its on/off button (bicycle manufacturer-specific solutions are possible when there is no access to the battery on/off button; see the bicycle manufacturer operating instructions).
- Remove the on-board computer from its holder.

If the eBike is not moved for approx. 10 min **and** no button is pressed on the on-board computer, the eBike system switches off automatically in order to save energy.

### eShift (optional)

eShift is the integration of electronic gear-shifting systems into the eBike system. The eShift components are electric-

ally connected to the drive unit by the manufacturer. The separate operating instructions describe how to operate the electronic gear-shifting systems.

### Setting the assistance level

You can set the level at which the eBike drive assists you while pedalling on the on-board computer. The assistance level can be changed at any time, even while cycling.

**Note:** In some models, the assistance level may be preset and cannot be changed. There may also be fewer assistance levels available than stated here.

The following assistance levels are available as a maximum:

- **OFF:** Motor assistance is switched off. The eBike can just be moved by pedalling, as with a normal bicycle. The push assistance cannot be activated at this assistance level.
- **ECO:** Effective assistance with maximum efficiency, for maximum range
- **TOUR:** Steady assistance, long range for touring
- **SPORT/eMTB:**  
**SPORT:** Powerful assistance, for mountain biking and cycling in urban traffic  
**eMTB:** Optimum assistance whatever the terrain, rapid acceleration when starting from a standstill, improved dynamics and top performance (**eMTB** only available in combination with the drive units BDU250P CX, BDU365, BDU450 CX and BDU480 CX. A software update may be required.)
- **TURBO:** Maximum assistance even at high pedalling speeds, for sport cycling

The requested motor output appears on the display of the on-board computer. The maximum motor output depends on the selected assistance level.

Assistance level	Assistance factor <sup>A)</sup>		
	Active Line (BDU310)	Active Line Plus (BDU350)	Performance Line (BDU365)
<b>ECO</b>	40 %	40 %	55 %
<b>TOUR</b>	100 %	100 %	120 %
<b>SPORT/eMTB</b>	150 %	180 %	200 %/dynamic <sup>B)</sup>
<b>TURBO</b>	250 %	270 %	300 %

A) The assistance factor may vary in some models.

B) The assistance level between **TOUR** and **TURBO** mode is dynamically progressive

## Switching the push assistance on/off

The push assistance aids you when pushing your eBike. The speed in this function depends on the selected gear and can reach a maximum of **6 km/h**. The lower the selected gear, the lower the speed of the push assistance function (at full power).

► **The push assistance function must only be used when pushing the eBike.** There is a risk of injury if the wheels of the eBike are not in contact with the ground while using the push assistance.

To **activate** the push assistance, briefly press the **WALK** button on your on-board computer. After activation, press the **+** button within 3 s and keep it pressed. The eBike drive is switched on.

**Note:** The push assistance cannot be activated at assistance level **OFF**.

The push assistance is **switched off** as soon as one of the following occurs:

- You release the **+** button;
- The wheels of the eBike are locked (e.g. by applying the brakes or hitting an obstacle);
- The speed exceeds **6 km/h**.

The push assistance function is subject to local regulations; the way it works may therefore differ from the description above, or the function may even be deactivated completely.

## Switching bicycle lights on/off

On the model where the bike lights are powered by the eBike system, the front light and taillight can be switched on and off at the same time via the on-board computer.

Check that your bike lights are working correctly before every use.

## Notes on cycling with the eBike system

### When does the eBike drive work?

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

If you apply less force, you will receive less assistance than if you apply a lot of force. This applies irrespective of the assistance level.

The eBike 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 push assistance function, in which the eBike can be pushed at low speed without pedalling. The pedals may rotate when the push 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 system or by setting the assistance level to **OFF**. The same applies when the battery is drained.

## Interaction between the eBike system and gear-shifting

The gear-shifting should be used with an eBike drive 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 to briefly stop pedalling when changing gear. This will facilitate the gear change 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 assistance levels, beginning with the lowest level. 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

The range is affected by a number of factors, such as:

- Assistance level
- Speed
- Gear shifting behaviour
- Tyre type and tyre pressure
- Age and condition of the battery
- Route profile (gradients) and conditions (road surface)
- Headwind and ambient temperature
- Weight of eBike, rider and luggage

For this reason, it is not possible to predict the range accurately before and during a trip. However, as a general rule:

- With the **same** assistance level on the eBike drive: The less energy you need to exert in order to reach a certain speed (e.g. by changing gears optimally), the less energy the eBike drive will consume and the higher the range per battery charge will be.
- The **higher** the selected assistance level under otherwise constant conditions, the smaller the range will be.

separately and recycled in an environmentally friendly manner.

Please return Bosch eBike components that are no longer usable to an authorised bicycle dealer.

**Subject to change without notice.**

## Taking care of your eBike

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

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

Please have your eBike serviced and repaired by an authorised bicycle dealer.

## Maintenance and servicing

### Maintenance and cleaning

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

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

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

Please have your eBike serviced and repaired by an authorised bicycle dealer.

### After-sales service and advice on using products

If you have any questions about the eBike system and its components, contact an authorised bicycle dealer.

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

### Disposal



The drive unit, on-board computer incl. operating unit, battery, speed sensor, accessories and packaging should be disposed of in an environmentally correct manner.

Do not dispose of eBikes and their components with household waste.



In accordance with Directive 2012/19/EU and Directive 2006/66/EC respectively, electronic devices that are no longer usable and defective/drain batteries must be collected





**BOSCH**

# Drive Units

BDU490P | BDU450 CX

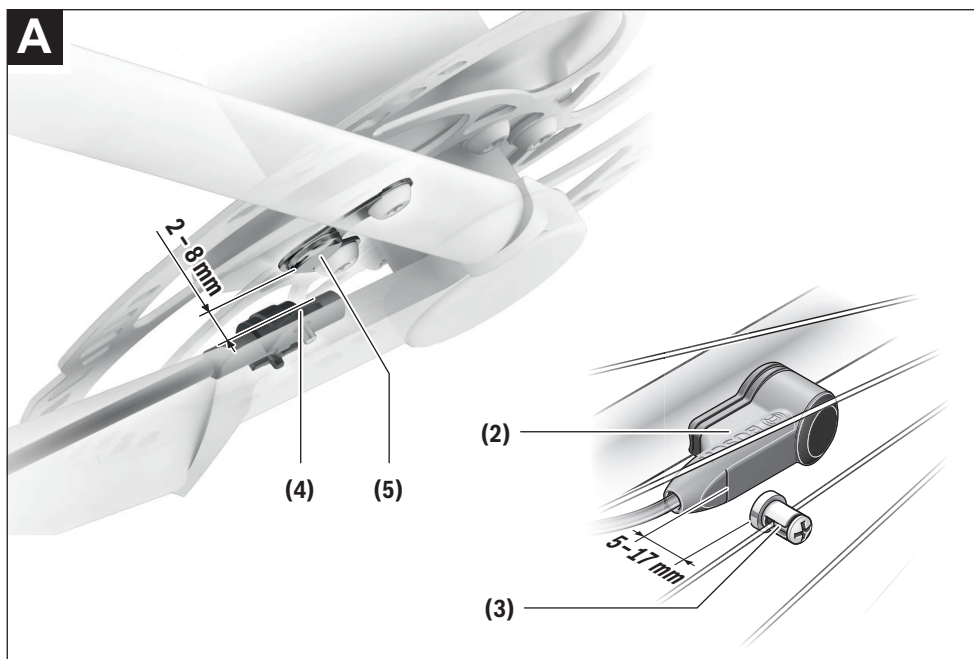


7

**Performance Line/Cargo Line**

***GHOST***



**A**

## Safety instructions



**Read all the safety information and instructions.** Failure to observe the safety information and follow instructions may result in electric shock, fire and/or serious injury.

### Save all safety warnings and instructions for future reference.

The term **battery** is used in these instructions to mean all original Bosch eBike rechargeable battery packs.

- ▶ **Do not attempt to change – and especially increase – the power of your drive or the maximum speed that it supports.** Doing this may put yourself and others at risk, and you may also breach statutory regulations.
- ▶ **Do not make any modifications to your eBike system or fit any other products that might increase the performance of your eBike system.** Doing so will generally reduce the service life of the system and risks damaging the drive unit and the bike. You also run the risk of losing the guarantee and warranty claims on the bicycle you have purchased. By handling the system improperly you are also endangering your safety and that of other road users, thus running the risk of high personal liability costs and possibly even criminal prosecution in the event of accidents that can be attributed to manipulation of the bicycle.
- ▶ **Do not open the drive unit yourself. The drive unit must only be repaired by qualified personnel using only original spare parts.** This will ensure that the safety of the drive unit is maintained. Unauthorised opening of the drive unit will render warranty claims null and void.
- ▶ **All components fitted to the drive unit and all other components of the eBike drive (e.g. chainring, chainring receptacle, pedals) 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.
- ▶ **Remove the battery from the eBike before beginning work (e.g. inspection, repair, assembly, maintenance, work on the chain, etc.) on the eBike, transporting it with a car or aeroplane, or storing it.** Unintentional activation of the eBike system poses a risk of injury.
- ▶ **The push assistance function must only be used when pushing the eBike.** There is a risk of injury if the wheels of the eBike are not in contact with the ground while using the push assistance.
- ▶ **When the push assistance is activated, the pedals may turn at the same time.** When the push assistance function is activated, make sure that there is enough space between your legs and the turning pedals to avoid the risk of injury.



**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
  - Assistance 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 batteries that the manufacturer has approved for your eBike.** Using other batteries can lead to injuries and pose a fire hazard. Bosch accepts no liability or warranty claims if other batteries are used.
- ▶ **Observe all national regulations which set out the approved use of eBikes.**
- ▶ **Read and observe the safety warnings and directions contained in all the eBike system operating instructions and in the operating instructions of your eBike.**

## Privacy notice

When you connect the eBike to the Bosch DiagnosticTool, data about the eBike drive unit (e.g. energy consumption, temperature, etc.) is transferred to Bosch eBike Systems (Robert Bosch GmbH) for the purpose of product improvement. You can find more information about this on the Bosch eBike website at [www.bosch-ebike.com](http://www.bosch-ebike.com).

# Product description and specifications

## Intended use

The drive unit 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.

## Technical data

Drive unit		Drive Unit Performance Line CX/ Cargo Line	Drive Unit Performance Line Speed/ Cargo Line Speed
Product code		BDU450 CX	BDU490P
Continuous rated power	W	250	250
Torque at drive, max.	Nm	85	75/85 <sup>A)</sup>
Rated voltage	V=	36	36
Operating temperature	°C	-5 to +40	-5 to +40
Storage temperature	°C	+10 to +40	+10 to +40
Protection rating		IP 54	IP 54
Weight, approx.	kg	3	3

A) Is determined by the bicycle manufacturer  
The Bosch eBike system uses FreeRTOS (see <http://www.freertos.org>).

Bicycle lights <sup>A)</sup>		
Voltage approx. <sup>B)</sup>	V=	12
Maximum power		
– Front light	W	17.4
– Tail light	W	0.6

A) Depends on legal regulations, not possible in all country-specific models via the eBike battery  
B) When changing the bulbs, ensure that they are compatible with the Bosch eBike system (ask your bicycle dealer) and are suitable for the specified voltage. Bulbs must only be replaced with bulbs of the same voltage.

Inserting a bulb incorrectly can cause it to blow.

# Assembly

## Inserting and removing the battery

For inserting and removing the eBike battery in/from the eBike, please read and observe the battery operating instructions.

## Checking the speed sensor (see figure A)

### Speedsensor (standard)

The speed sensor (2) and its spoke magnet (3) must be fitted such that the spoke magnet moves past the speed

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
- (3) Speed sensor spoke magnet
- (4) Speedsensor (slim)<sup>A)</sup>
- (5) Magnet<sup>B)</sup>

A) different sensor type and installation position is possible  
B) different installation position is possible

sensor at a distance of at least 5 mm and at most 17 mm with each rotation of the wheel.  
**Note:** If the distance between the speed sensor (2) and the spoke magnet (3) is too small or too large, or if the speed sensor (2) is not properly connected, the speedometer display will fail and the eBike drive unit will operate in emergency mode.  
Should this occur, loosen the screw of the spoke magnet (3) and fasten the spoke magnet to the spoke such that it runs past the marking on the speed sensor at the correct clearance. If the speed is still not being indicated on the speedometer display after doing this, please contact an authorised bicycle dealer.



### Speedsensor (slim)

The speedsensor (slim) (4) and its magnet (5) must be mounted 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 8 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.

## Operation

### Start-up

#### Requirements

The eBike system can only be activated when the following requirements are met:

- A sufficiently charged battery is inserted (see battery operating instructions).
- The on-board computer is properly inserted in the holder (see on-board computer operating instructions).
- The speed sensor is correctly connected (see "Checking the speed sensor (see figure A)", page English – 2).

#### Switching the eBike system on/off

The following options are available for **switching on** the eBike system:

- If the on-board computer is already switched on when you insert it into the holder, the eBike system will be activated automatically.
- Once the on-board computer and the eBike battery are fitted, briefly press the on/off button on the on-board computer.
- With the on-board computer inserted, push the on/off button on the eBike battery (bicycle manufacturer-specific solutions are possible when there is no access to the battery on/off button; see the battery operating instructions).

The drive is activated as soon as you start pedalling (except if you are using the push-assistance function, Switching the push assistance on/off). The motor output depends on the settings of the assistance level on the on-board computer.

As soon as you stop pedalling when in normal operation, or as soon as you have reached a speed of **25/45 km/h**, the eBike drive switches off the assistance. The drive is automatically reactivated as soon you start pedalling again and the speed is below **25/45 km/h**.

The following options are available for **switching off** the eBike system:

- Press the on/off button of the on-board computer.
  - Switch off the eBike battery using its on/off button (bicycle manufacturer-specific solutions are possible when there is no access to the battery on/off button; see the bicycle manufacturer operating instructions).
  - Remove the on-board computer from its holder.
- If the eBike is not moved for approx. 10 min **and** no button is pressed on the on-board computer, the eBike system switches off automatically in order to save energy.

### eShift (optional)

eShift is the integration of electronic gear-shifting systems into the eBike system. The eShift components are electrically connected to the drive unit by the manufacturer. The separate operating instructions describe how to operate the electronic gear-shifting systems.

### Setting the assistance level

You can set the level at which the eBike drive assists you while pedalling on the on-board computer. The assistance level can be changed at any time, even while cycling.

**Note:** In some models, the assistance level may be preset and cannot be changed. There may also be fewer assistance levels available than stated here.

The following assistance levels are available as a maximum:

- **OFF:** Motor assistance is switched off. The eBike can just be moved by pedalling, as with a normal bicycle. The push assistance cannot be activated at this assistance level.
- **ECO:** Effective assistance with maximum efficiency, for maximum range
- **TOUR:** Steady assistance, long range for touring
- **SPORT/eMTB:**  
**SPORT:** Powerful assistance, for mountain biking and cycling in urban traffic  
**eMTB:** Optimum assistance whatever the terrain, rapid acceleration when starting from a standstill, improved dynamics and top performance (**eMTB** only available in combination with the drive units BDU250P CX, BDU365, BDU450 CX and BDU480 CX. A software update may be required.)
- **TURBO:** Maximum assistance even at high pedalling speeds, for sport cycling

The requested motor output appears on the display of the on-board computer. The maximum motor output depends on the selected assistance level.

Assistance level	Assistance factor <sup>A)</sup>		
	Performance Line (BDU490P)	Performance Line CX (BDU450 CX)	Cargo Line
<b>ECO</b>	60 %	60 %	60 %
<b>TOUR</b>	140 %	140 %	140 %
<b>SPORT/eMTB</b>	240 %	240/140...340 % <sup>B)</sup>	240 %
<b>TURBO</b>	340 %	340 %	400 %

A) The assistance factor may vary in some models.

B) Maximum value

## Switching the push assistance on/off

The push assistance aids you when pushing your eBike. The speed in this function depends on the selected gear and can reach a maximum of **6 km/h**. The lower the selected gear, the lower the speed of the push assistance function (at full power).

► **The push assistance function must only be used when pushing the eBike.** There is a risk of injury if the wheels of the eBike are not in contact with the ground while using the push assistance.

To **activate** the push assistance, briefly press the **WALK** button on your on-board computer. After activation, press the **+** button within 3 s and keep it pressed. The eBike drive is switched on.

**Note:** The push assistance cannot be activated at assistance level **OFF**.

The push assistance is **switched off** as soon as one of the following occurs:

- You release the **+** button;
- The wheels of the eBike are locked (e.g. by applying the brakes or hitting an obstacle);
- The speed exceeds **6 km/h**.

The push assistance function is subject to local regulations; the way it works may therefore differ from the description above, or the function may even be deactivated completely.

## Switching bicycle lights on/off

On the model where the bike lights are powered by the eBike system, the front light and taillight can be switched on and off at the same time via the on-board computer.

Check that your bike lights are working correctly before every use.

## Notes on cycling with the eBike system

### When does the eBike drive work?

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

If you apply less force, you will receive less assistance than if you apply a lot of force. This applies irrespective of the assistance level.

The eBike drive automatically switches off at speeds over **25/45 km/h**. When the speed falls below **25/45 km/h**, the drive automatically becomes available again.

An exception applies to the push assistance function, in which the eBike can be pushed at low speed without pedalling. The pedals may rotate when the push 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 system or by setting the assistance level to **OFF**. The same applies when the battery is drained.

## Interaction between the eBike system and gear-shifting

The gear-shifting should be used with an eBike drive 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 to briefly stop pedalling when changing gear. This will facilitate the gear change 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 assistance levels, beginning with the lowest level. 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

The range is affected by a number of factors, such as:

- Assistance level
- Speed
- Gear shifting behaviour
- Tyre type and tyre pressure
- Age and condition of the battery
- Route profile (gradients) and conditions (road surface)
- Headwind and ambient temperature
- Weight of eBike, rider and luggage

For this reason, it is not possible to predict the range accurately before and during a trip. However, as a general rule:

- With the **same** assistance level on the eBike drive: The less energy you need to exert in order to reach a certain speed (e.g. by changing gears optimally), the less energy the eBike drive will consume and the higher the range per battery charge will be.
- The **higher** the selected assistance level under otherwise constant conditions, the smaller the range will be.

separately and recycled in an environmentally friendly manner.

Please return Bosch eBike components that are no longer usable to an authorised bicycle dealer.

**Subject to change without notice.**

## Taking care of your eBike

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

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

Please have your eBike serviced and repaired by an authorised bicycle dealer.

## Maintenance and servicing

### Maintenance and cleaning

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

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

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

Please have your eBike serviced and repaired by an authorised bicycle dealer.

### After-sales service and advice on using products

If you have any questions about the eBike system and its components, contact an authorised bicycle dealer.

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

### Disposal



The drive unit, on-board computer incl. operating unit, battery, speed sensor, accessories and packaging should be disposed of in an environmentally correct manner.

Do not dispose of eBikes and their components with household waste.



In accordance with Directive 2012/19/EU and Directive 2006/66/EC respectively, electronic devices that are no longer usable and defective/drain batteries must be collected



