User's Manual

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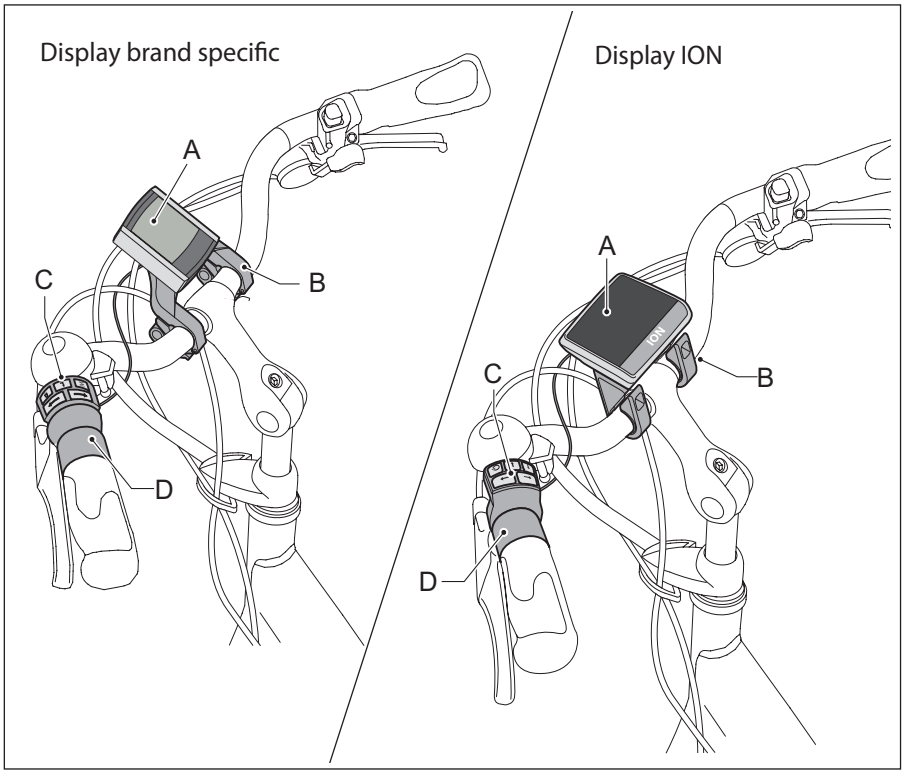
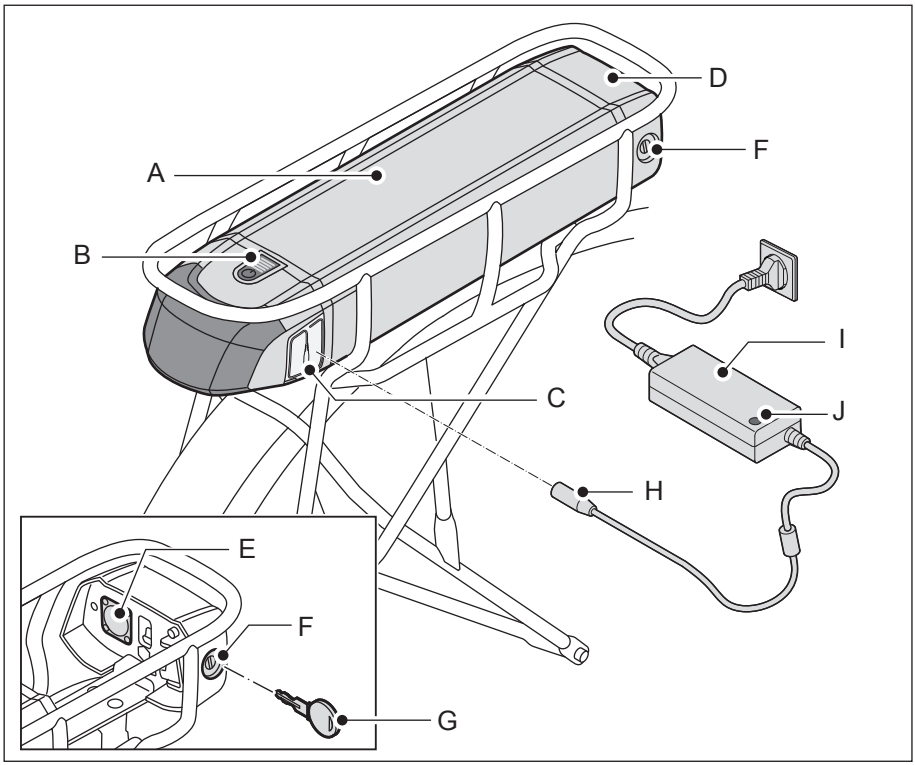
1 Overview of components

1.1 Display and control unit



A Display
B Display holder
C Control unit
D Throttle

1.2 Battery pack and charger



A Battery pack
B State of charge display
C Charging point
D Docking station
E Docking station contact point
F Lock
G Key
H Plug
I Charger
J Indicator

2 Battery pack

2.1 Charging instructions

Read the following instructions and warnings carefully before using the e-bike. The manufacturer is not responsible for accidents or malfunctions caused by improper use of the e-bike or parts of the e-bike:

- Fully charge the battery pack once before the first use of the bike.
- Every battery runs down over time. This process is called ‘self-discharge’. A battery pack that is empty and that is not charged can reach deep discharge due to self-discharge within two months, causing it to become defective. The warranty is void in the event of deep discharge.
- The battery pack does not need to be completely empty before charging. The battery pack will remain in good condition if you charge the bicycle after every use (regardless of the trip distance). Once the battery is fully charged, charging stops automatically. The light on the charger continues to be lit green.
- You can leave the charger connected for long-term storage. If this is not possible, charge the battery pack fully and disconnect the charger from the battery pack. Charge the battery pack fully at least once every two months.
- Ensure that the battery pack remains within the temperature limits given below. This extends the lifespan and increases the performance of the battery pack. Furthermore, charging or the power assistance will not work outside the temperature limits.

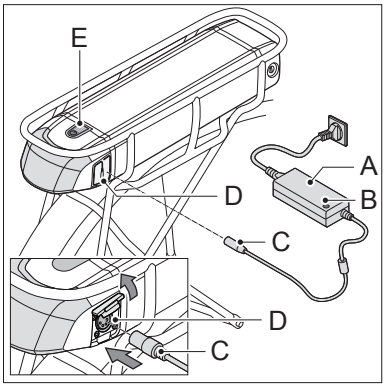
Status	Minimum [°C]	Maximum [°C]
While charging	0	45
During use	-15	60
Storage (at least 80% charge level)	-10	35

- Always charge the battery pack using the charger delivered with the bicycle. Do not use any other charger. The colour of the plug must match the colour of the socket.
- No not connect the charger to the mains voltage when it is not used.
- Disconnect the charger from the battery before you start cycling.
- Make sure that the charger does not get wet.
- Do not damage the charger.
- Do not charge the battery pack in direct sunlight.
- Do not drop the battery pack. This can damage the battery pack.

- Remember that your bike produces less power assistance at lower temperatures (below 10°C) and that the battery pack will run empty more quickly.
- Large temperature changes can cause major differences in the battery charge indication, especially at low temperatures and with a low charge on the battery pack.

2.2 Charging the battery pack

1. Check whether the mains cord has been connected to the charger correctly (A).
2. Connect the charger (A) to the mains voltage. The green indicator lamp (B) will light up.
3. Connect the plug (C) to the charger at the charging point (D).
4. An LED light (E) on the battery pack will start to flash.
5. When all 5 LED lights (E) are lit, the battery pack is fully charged.



The battery can be charged both on and separate from the bicycle.
If the battery is charged *on the bike*, the battery charge of the battery pack will be displayed on the display in percentages. An indication of the expected charging time will also be displayed. The actual charging time can vary and will depend on the temperature, charger type and battery type.
If the battery is charged *separate from the bike*, the LED lights on the battery pack will display the battery charge.
Every LED light represents 20%. Also see the table below.

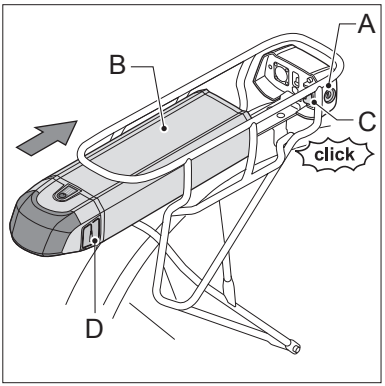
Number of lit LED lights on the battery pack while charging	Charge indication
4 (5th flashes)	80 - 100 %
3 (4th flashes)	60 - 80 %
2 (3rd flashes)	40 - 60 %
1 (2nd flashes)	20 - 40 %
None (1st flashes)	0 - 20 % *

Example (charging separate from the bike): 1 LED on the battery pack lights up green and the 2nd LED flashes: the charging process has now charged the battery between 20% and 40%.

**Pedal assist will stop with 0% battery charge. The battery pack will still have enough energy to supply power to the display and bicycle lights for a few hours (also see par. 3.8.6).*

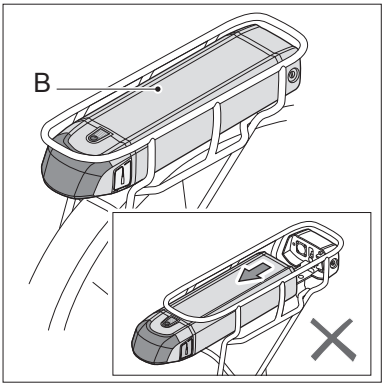
2.3 Installing the battery pack

1. Remove the key from the lock of the docking station (A).
2. Carefully push the battery pack (B) under the luggage carrier alongside the guide until the lock clicks (C).
3. Make sure that the cover (D) of the charging plug is closed.



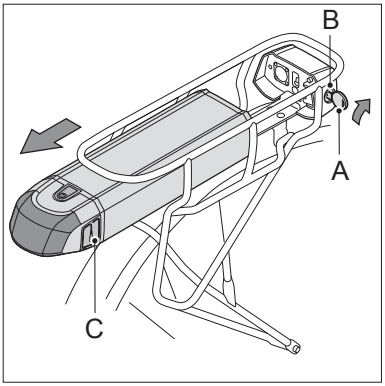
4. Make sure the battery pack (B) is locked by pulling it backwards.

A correctly installed battery pack can no longer be removed without a key.

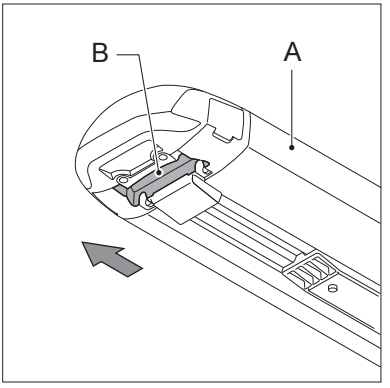


2.4 Removing the battery pack

1. Insert the key (A) in the lock (B) (this key is the same as the key for the bicycle lock).
2. Make sure that the cover (C) of the charging plug is closed.



3. Remove the battery pack (A) from the luggage carrier using the handle (B) on the bottom of the battery pack.



- Always remove the battery pack with two hands to prevent the battery pack from falling.
- Take the battery pack out of the luggage carrier when transporting the bicycle by car.

2.5 Security

The battery pack can only be used on the bicycle on which it has been installed. A code in the software makes sure that it cannot be used on another bicycle, that is to say, there will be no peddling assistance (protection against theft). A second battery pack can in many cases be purchased for your e-bike. Contact your dealer for more information.

2.6 Connect module*

It is possible that your e-bike is equipped with a connect module. The e-bike then has an Internet connection, so that you can always see the location and status of your e-bike. That is handy in the event of theft, for example. In order to make use of the entire connect module, you must install an app on your telephone. The app can be found in the app store/play store, by running a search for ‘Sparta Connect’. You will find more information about this module on Sparta’s website.

The connect module, in combination with the app, gives you access to the following functionalities, among other things:

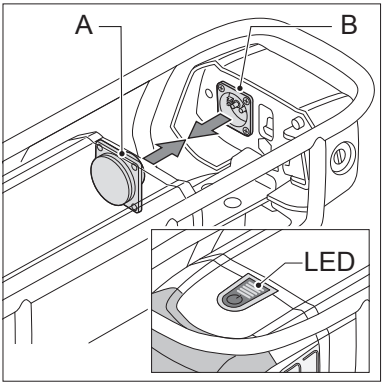
- Motion recording: message generated if the e-bike is moving faster than 50 km per hour or if the e-bike falls over or is moved.

** Optional.*

- Charge-up reminder: message generated if the small battery of the module must be charged up. For this purpose, slide the battery pack into the luggage rack. See §2.2.
- Service reminder direct to your mobile: message generated if it is time for a servicing session.
- Geofencing: message generated if your e-bike goes into or moves out of an area which you yourself have specified.
- Track and trace: trace your e-bike by means of GPS. Gain insight (via the app) into the current location of your e-bike.
- Bike's history: see where you have cycled, going back as far as one year in the past.

You buy bikes equipped with the connect module ready for use. It is not possible to fit the module onto your bike later.

2.7 Diagnosis message



If all the LED lights on the battery pack flash, first check whether the battery pack (A) has been connected correctly to the contact point of the docking station (B).
If the LED lights continue to flash, contact your dealer.

The contact surface between the battery pack and the docking station must be free from dirt and moisture to make sure the e-bike works correctly. Use a clean cloth to clean it if required. Much moisture and dirt can lead to contact problems and/or faults.

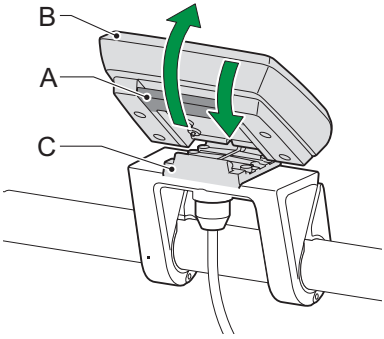
NB: the contact point (A) on the battery pack is magnetic and provides an optimum connection between the battery pack and the docking station. Metal particles are therefore attracted to contact point easily. Check the contact points thoroughly for dirt, particularly when you have charged the battery pack when disconnected from the bike.

3 Display ION

This chapter gives information about the display with ION on it.
Chapter 4 is about the brand specific display. That probably is Batavus, Ghost, Hercules, Koga or Sparta.

3.1 Removing and fixing

Removing: Press the button (A) on the rear side and pull up the display (B) from the display holder (C) as shown in the adjacent figure (left arrow).

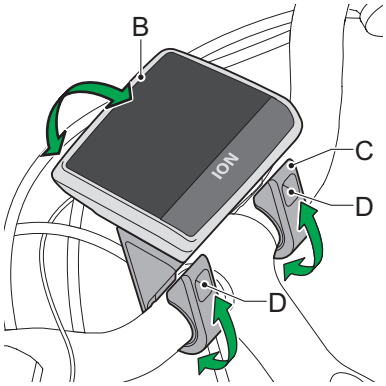


Tightening: Position the bottom side of the display (B) in the display holder (C) and, next, press the display down so that the display holder clicks as shown in the adjacent figure (right arrow).

The contact surface between the display and the display holder must be free from dirt and moisture to make sure the e-bike works correctly. Use a clean cloth to clean it if required.

3.2 Adjustment

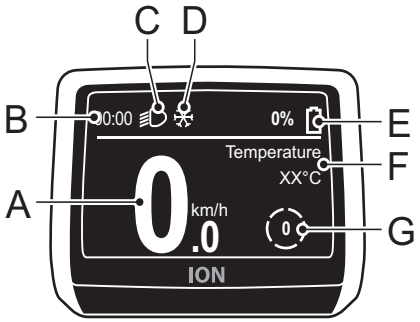
Slightly loosen the 2 screws (D). Hold on to both the display (B) and the display holder (C) to turn them both. The display does not need to be removed.



Remove the display when storing and transporting the bike.

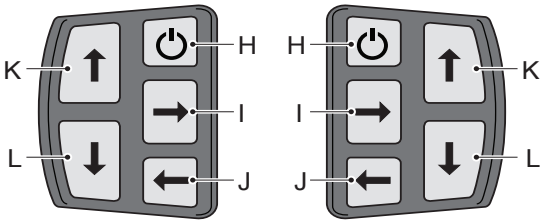
3.3 Overview of buttons and indications

3.3.1 Display



A Speed
B Time (par. 3.8.1)
C Lights (par. 3.8.6)
D Frost symbol (par. 3.6.1)
E Battery charge (par. 2.2)
F Variable display option (par. 3.6)
G Assistance level (par. 3.5)

3.3.2 Control unit



H On/off button
I Arrow to the right*
J Arrow to the left*
K Arrow up*
L Arrow down*

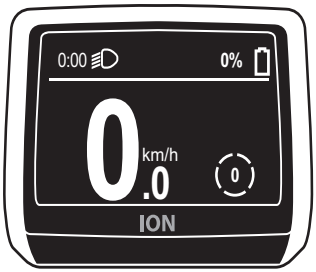
Left assembly

Right assembly

* Driving position operation and display options.

- The buttons of the control unit are lit when the system is on. This is not linked to the bike lights.
- The control unit can be installed either on the left or right.

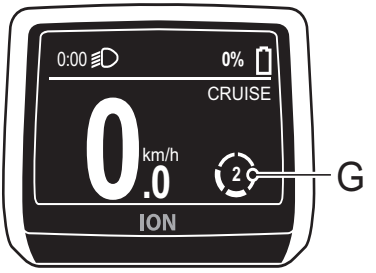
3.4 Switching on and off the system



The system can be switched on by pressing the ⏻ for a short period of time. Pedal assist will be switched of by pressing the ⏻ for a short period of time. If the ⏻ is pressed for 2 seconds, the entire system will switch off: the pedal support, lights and display will no longer be operational. When the e-bike is not being used, the system and lights will switch off automatically after five minutes.

3.5 Setting power assistance

Switch on the system by pressing the ⏻.
Press the ↑ or ↓ to set the assistance (G).



The assistance settings are:
1. ECO
2. CRUISE
3. TOUR
4. SPORT
5. POWER

You can alternate between the positions with the ↑ and ↓ .
If you alternate between the assistance positions while cycling, this option will be displayed at the top on the right for a short period of time.

3.6 Display options

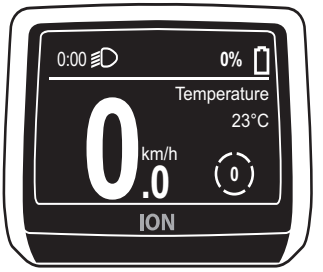
You can choose whether you want a simple or extensive information to be displayed on your display. See below at par. § 3.8.3.

If you select *Simple,* you will not be shown additional information.
If you select *Extensive*, you will be shown different display options on your display. All possible options are explained briefly below.
The time is always displayed on the display.

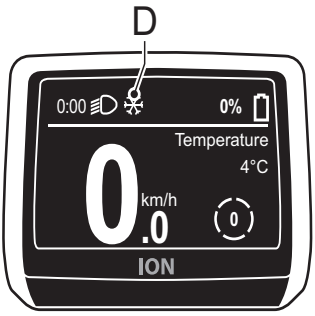
If the basic display is shown, you can navigate through the display options by using the ← and → .

3.6.1 Temperature

You can select this to show the outside temperature on your display. The *Temperature* option is the first function.

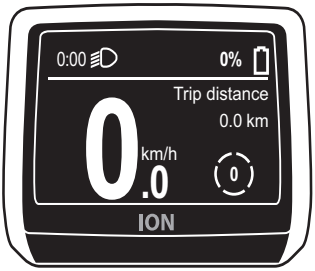


The display will show a frost symbol (D) when the outside temperature is 4°C or lower. When this symbol is shown on the display, the road surface may be slippery. Adjust your speed to this.
The range of the battery pack will decrease considerably when the ambient temperature is this low.



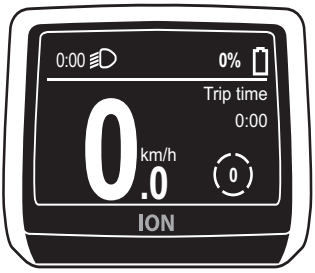
3.6.2 Trip distance

The *Trip distance* indicates how far you have cycled with your e-bike during the current trip.
The trip distance is measured from the moment that you start cycling. To reset the *Trip distance* see par. 3.6.8.



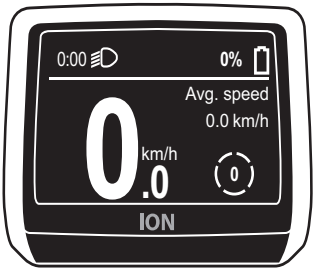
3.6.3 Trip time

The *Trip time* indicates how long you have used your e-bike during the current trip. The trip time is measured from the moment that you start cycling. To reset the *Trip time* see par. 3.6.8.

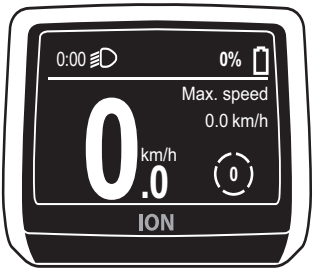


3.6.4 Average speed

The average speed over the cycled distance is displayed at *Avg. speed*.
To reset the *Average speed* see par. 3.6.8.

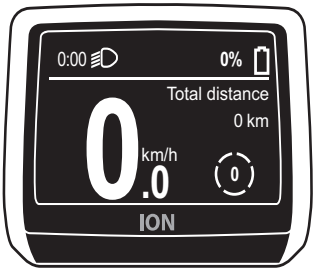


3.6.5 Maximum speed



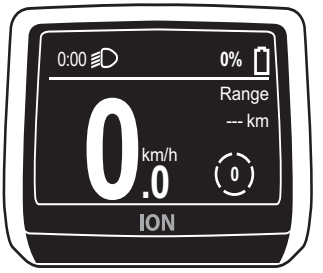
The maximum speed with regard to the current trip is displayed at *Max. speed*. To reset the *Max. speed* see par. 3.6.8.

3.6.6 Total distance



The total number of cycled kilometers is shown at *Total distance* measured as from when you start using the bike. You cannot reset the *Total distance*.

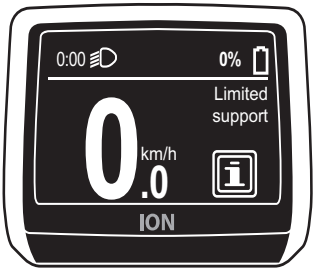
3.6.7 Range



The range shows how many kilometers can still be cycled with assistance. This depends on the assistance setting. The lower the setting, the higher the range. At range 0, a range will not be shown because the range without assistance is limitless.
If a range is displayed on your display, you can see what the difference is in range per assistance setting with the ↑ and ↓.

The range is calculated based on current and historic use in combination with the battery charge of the battery pack. The temperature also plays a role in this calculation.

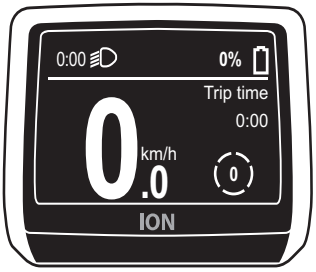
If the battery pack is basically fully discharged, the "Limited support" message will be displayed on the display. If the battery pack is discharged, the bike cannot offer assistance. Charge the e-bike as soon as possible so that you can always use assistance. A battery pack that is fully discharged and is not charged, may over-discharge. See par. 2.1.



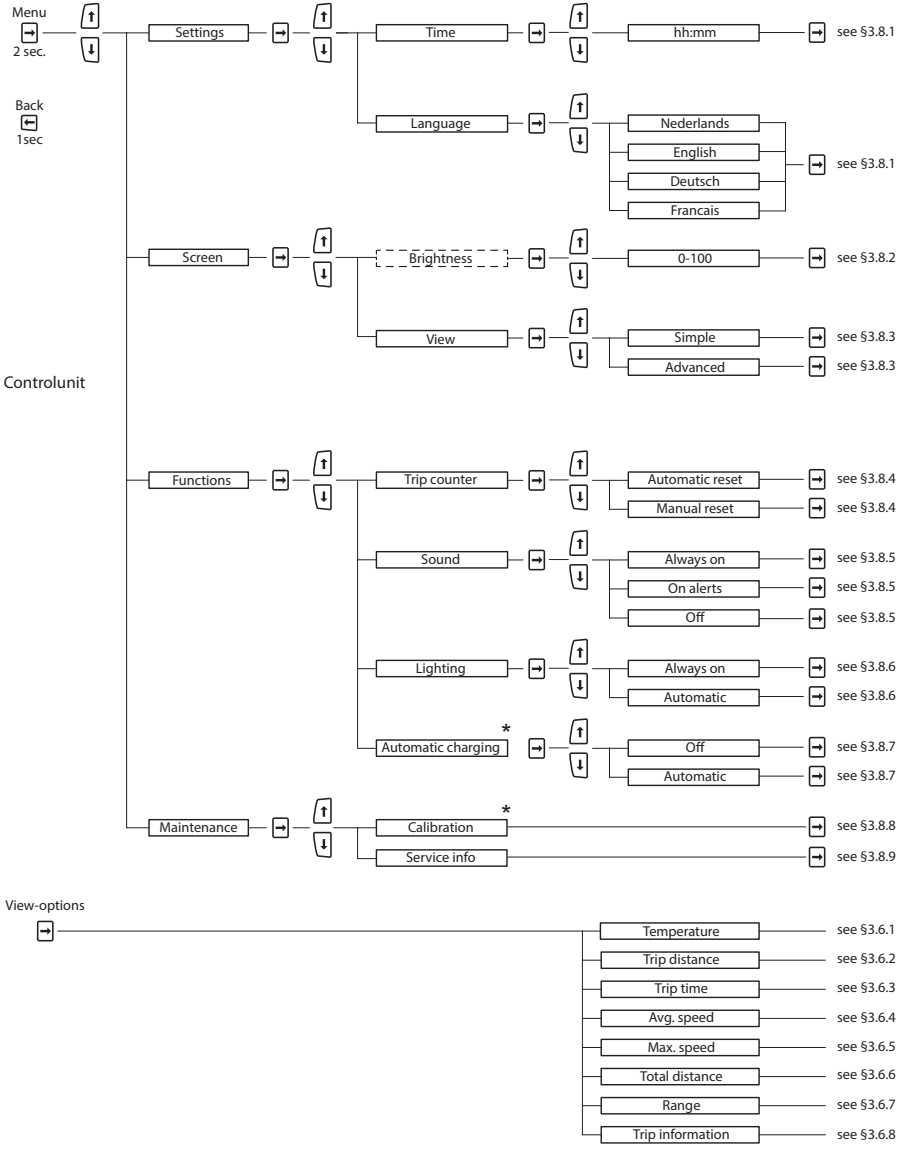
For more information about range figures, see chapter 5.

3.6.8 Trip information

The trip distance and time and the average and maximum speed are linked to each other.
The trip counter (see par. 3.8.4) will keep track of the information of the current trip, for example, the trip distance (see par. 3.6.2) and trip time (see par. 3.6.3.). You can select an automatic or manual reset.
If you select *Automatic reset*, the trip counter will be reset automatically when the bike is not used for longer than 2 hours.
If you select *Manual reset*, make sure that the "trip distance" or "trip time" option is displayed on the display. Next, hold the ← pressed for 3 seconds. The trip counter will now be reset to 0.



3.7 Menu overview



**Automatic charging and calibration is not available on every e-bike. See §3.8.7 and §3.8.8.*

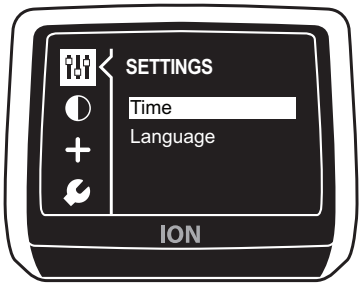
3.8 Menu overview explanation

3.8.1 Time and language

You can open the menu overview by pressing the → for 3 seconds. You can navigate through the menu by using the ↓ , ↑ , ← and → . The menu structure and also which buttons must be used on the control menu are explained in § 3.7.

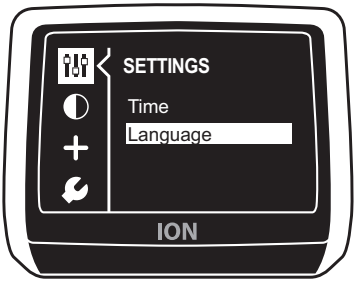
Time

The time is always displayed on the display. The time can be adjusted by selecting the *Time* option on the *Settings menu.* You can open a display where the time is shown by again pressing the → . Use the ↓ , ↑ , ← and → to adjust the time. Use the → to confirm the set time.
You can return to the basic display by pressing ← a few times.



Language

The language can be set by selecting the *Language* option on the *Settings menu.* If you want to change the language, press the → . Use the ↓ and ↑ to toggle between the available languages. When you have selected the required language, again press the → . You can return to the basic display by pressing ← a few times. You can select between Dutch, English, German and French.



3.8.2 Brightness (optional)

The display's brightness will automatically be different when it is dark outside when compared to the daylight display. You can set this brightness. This, however, can only be set if the display is really in the "night setting", therefore, in a dark environment. The display's brightness during daylight is a fixed value and cannot be set.

- Hold the → pressed for 3 seconds.
- Use the ↓ and ↑ to go to the *Screen* menu.
- Use the → to go right.
- Use the (↑ and) ↓ to go to *Brightness.*
- Press the → once.
- Select the required option using ↓ and ↑ .
- Again press the → to set the required option.
- Press the ← several times to return to the basic display.

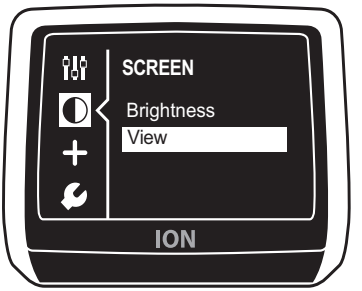
3.8.3 View

You can select between a simple or extensive display to be shown on the display.

If you select *Simple*, additional information will not be shown on the display.
If you select *Extensive*, additional information will be shown on the display.
The options have already been explained above:
- Temperature (par. 3.6.1)
- Trip distance (par. 3.6.2)
- Trip time (par. 3.6.3)
- Average speed (par. 3.6.4)
- Max. speed (par. 3.6.5)
- Total distance (par. 3.6.6)
- Range (par. 3.6.7)

After the range, an option is shown that no additional information is shown on the display.
You can alternate between the different options with the ← and → .

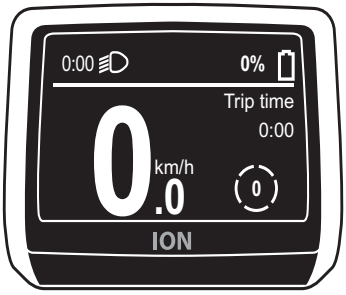
- Hold the → pressed for 3 seconds.
- Use the ↓ and ↑ to go to the *Screen* menu.
- Use the → to go right.
- Use the (↑ and) ↓ to go to *View.*
- Press the → once.
- Select the required option using ↓ and ↑ .
- Again press the → to set the required option.



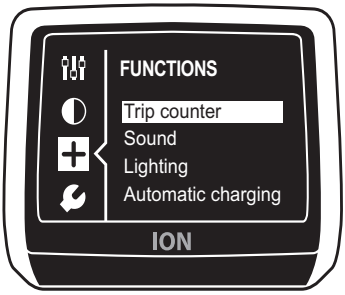
- Press the ← several times to return to the basic display.

3.8.4 Trip counter

The trip counter will keep track of the information of the current trip, for example, the trip distance (see § 3.6.2) and trip time (see § 3.6.3.). You can select an automatic or manual reset.
If you select *Automatic reset*, the trip counter will be reset automatically when the bike is not used for longer than 2 hours.
If you select *Manual reset*, make sure that the "trip distance" or "trip time" option is displayed on the display. Next, hold the ← pressed for 3 seconds. The trip counter will now be reset to 0.



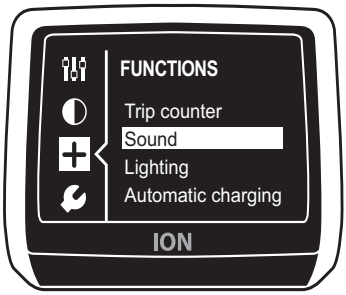
- Hold the → pressed for 3 seconds.
- Use the ↓ and ↑ to go to the *Functions* menu.
- Use the → to go to *Trip counter*.
- Again press the → .
- Select the required option using the ↓ and ↑ .
- Again press the → to set the required option.
- Press the ← several times to return to the basic display.



3.8.5 Sound

You can set whether (and in which cases) you want to hear sound under Sound.
If you select *Always on*, the display will emit five long beeps when there is a message. In addition, you will hear a short beep when you press the buttons of the control unit, after calibrating and after resetting a trip.
If you select *On alerts*, the display will emit five long beeps when there is a message. Your display will not emit a beep if you press the buttons of the control unit, after calibrating and after resetting a trip.
If you select *Off*, the display will not emit any beeps.

- Hold the → pressed for 3 seconds.
- Use the ↓ and ↑ to go to the *Functions* menu.
- Use the → to go right.
- Use the (↑ and) ↓ to go to *Sound.*
- Again press the ↓ .
- Select the required option using ↓ and ↑ .
- Again press the → to set the required option.
- Press the ← several times to return to the basic display.



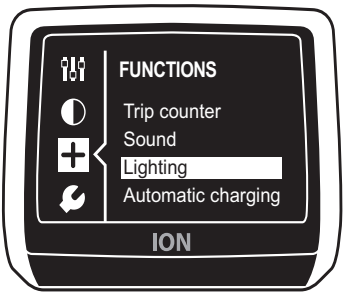
3.8.6 Lighting

You can set whether you always want the lights to be on or that they go on automatically under Lights.
If you select *Always on*, the bike's lights will always be on.
If you select *Automatic*, the bike's lights will be switched on and off automatically. The light sensor continuously measures the quantity of light and will switch the lights on and off based on this information.
The lights (both at the front and rear) are supplied with power from the battery pack and will, therefore, only work when the battery pack and display has been installed in the e-bike. The motor will work as a dynamo when the battery pack is fully discharged*.
The rear light is fixed to the battery pack. Some bikes have a rear light that projects a V shape onto the ground (only visible in the dark). This light enables the traffic coming from behind to judge the distance to the bike better and creates a safe zone around it. Never look directly into the lenses of the rear light when it is on! If you need to replace the rear light, we recommend contacting your certified e-bike dealer.

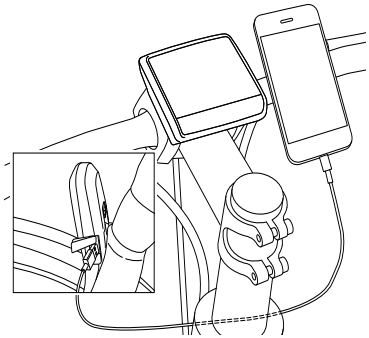
The rear light has 2 positions: daylight and nightlight. Depending on the ambient light, the headlamp automatically switches between daylight and nightlight. The LED strip and the LED in the centre of the lamp lights up in both positions. The LED light in the centre of the lamp burns brighter in night mode.

**Works only on e-bikes with a front- or rear wheel motor. Middle motor: p.58.*

- Hold the → pressed for 3 seconds.
- Use the ↓ and ↑ to go to the *Functions* menu.
- Use the → to go right.
- Use the (↑ and) ↓ to go to *Lighting.*
- Again press the → .
- Select the required option using ↓ and ↑ .
- Again press the → to set the required option.
- Press the ← several times to return to the basic display.



3.8.6.1 Charging a telephone via the front light



Your headlamp is equipped with a USB port* for charging your phone, for example. You will need a cable for this. You can use the same one that you use for charging your phone.

Your phone will only charge when the light is burning. The lighting is powered from the battery pack on your e-bike and is set to *Always on* by default. This ensures that your phone can charge while your are cycling. When the bike is stationary, the lights will go out automatically after 5 minutes. Charging will also stop.
You can also opt to set the lighting to *Automatic* via the menu (see section 3.8.6). The bike lights will be on or off depending on the ambient light. The phone will not charge when the lights are off.

The extent to which the phone can be charged depends on the type of phone and how intensively it is used. The majority of phones are charged in standby mode (no navigation and screen off). Your phone will charge slower than with your original charger. Using navigation, so using the phone screen, consumes more power than can actually be recharged. Your phone will therefore run out of power, but not as quickly as when you do not recharge it.
**Optional.*

3.8.7 Automatic charging

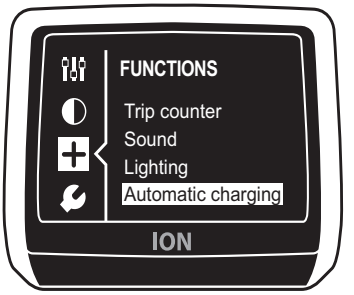
The 'automatic charging' function only works on e-bikes with a rear wheel motor.

The e-bike will automatically generate energy when pressure is not applied to the pedals. This makes sure that the battery pack can be charged while cycling.

To use this function, you must first switch it on in the menu.
The automatic charging function works up to about 35 km/h and approximately 80% of the battery charge depending on the temperature.

Switching on automatic charging
The selected many setting will be active immediately and will continue to apply until it is again adjusted on the display menu.

If the automatic charging function has been activated and no pressure is applied to the pedals, the battery pack will be charged automatically. You will feel a slight resistance on the motor while charging and the "Charging" text will be displayed on the display.



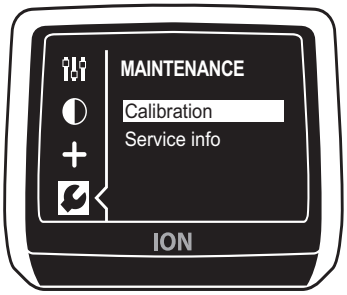
- Hold the → pressed for 3 seconds.
- Use the ↓ and ↑ to go to the *Functions* menu.
- Use the → to go right.
- Use the (↑ and) ↓ to go to *Automatic charging.*
- Again press the → .
- Select the required option using ↓ and ↑ .
- Again press the → to set the required option.
- Press the ← several times to return to the basic display.

3.8.8 Calibration

The 'calibrate' function is only displayed on e-bikes with a front- or rear wheel motor.

If the assistance reduces after a time, the electronics may have to be calibrated.

1. Position yourself next to the bike.
2. Do not apply pressure on the pedals.
3. Hold the → pressed for 3 seconds.
4. Use the ↓ to go to the *Maintenance* menu.
5. Use the → to select *Calibration*.
6. Again press the → .
7. Calibration will now be performed.
8. Press the ← several times to return to the basic display.



To keep a pleasant assistance, we recommend calibrating the e-bike once a month.

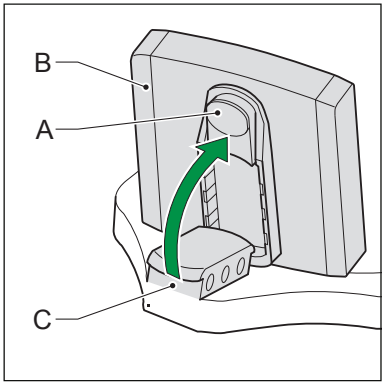
4 Display brand specific

This chapter is about the brand specific display. That brand is probably Batavus, Ghost, Hercules, Koga or Sparta. Chapter 3 is about the display with ION on it.

4.1 Removing and fixing

Removing: Press the button (A) on the bottom side and remove the display (B) from the display holder (C).

Fixing in place: Position the display (B) obliquely on the display holder (C) and click it in place in the lock.

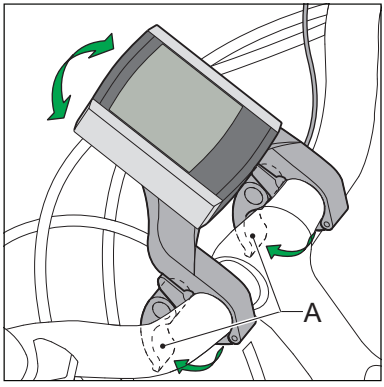


4.2 Adjust

Loosen the handles (A) and twist the display holder.

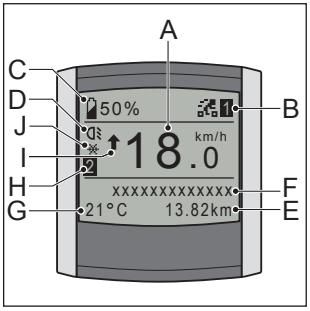
Remove the display when storing and transporting the bicycle.

To ensure that the E-bike works correctly, make sure the interface between the display and the display holder is free of dirt and moisture. If necessary, clean it with a clean, dry cloth.



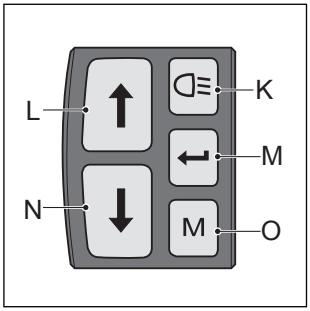
4.3 Overview of buttons and indications

4.3.1 Display



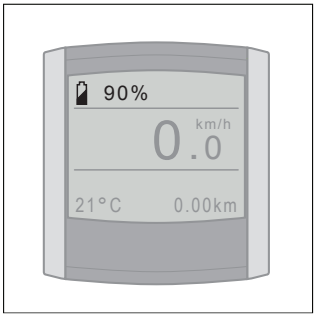
A Present speed
B Peddling assistance level
C Battery pack charge level
D Lighting indicator
E Variable indicator
F Variable indictor description
G Temperature/Time
H View Trip 1/Trip 2
I Average speed indicator
J Frost symbol

4.3.2 Control unit



K Lighting button
L Up button – variable application
M Set – variable application
N Down button – variable application
O Mode button – variable application

4.4 Switching on the display

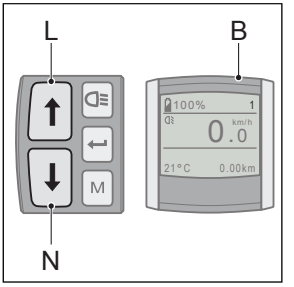


If the up arrow on the lighting button is pressed, the reading will be displayed. When the E-bike is not in use, the power assistance and lighting will switch off automatically after five minutes. Fifteen minutes later, the display will automatically switch to sleep mode and no longer show an image. To get the display out of sleep mode, press on or or put the E-bike into motion.

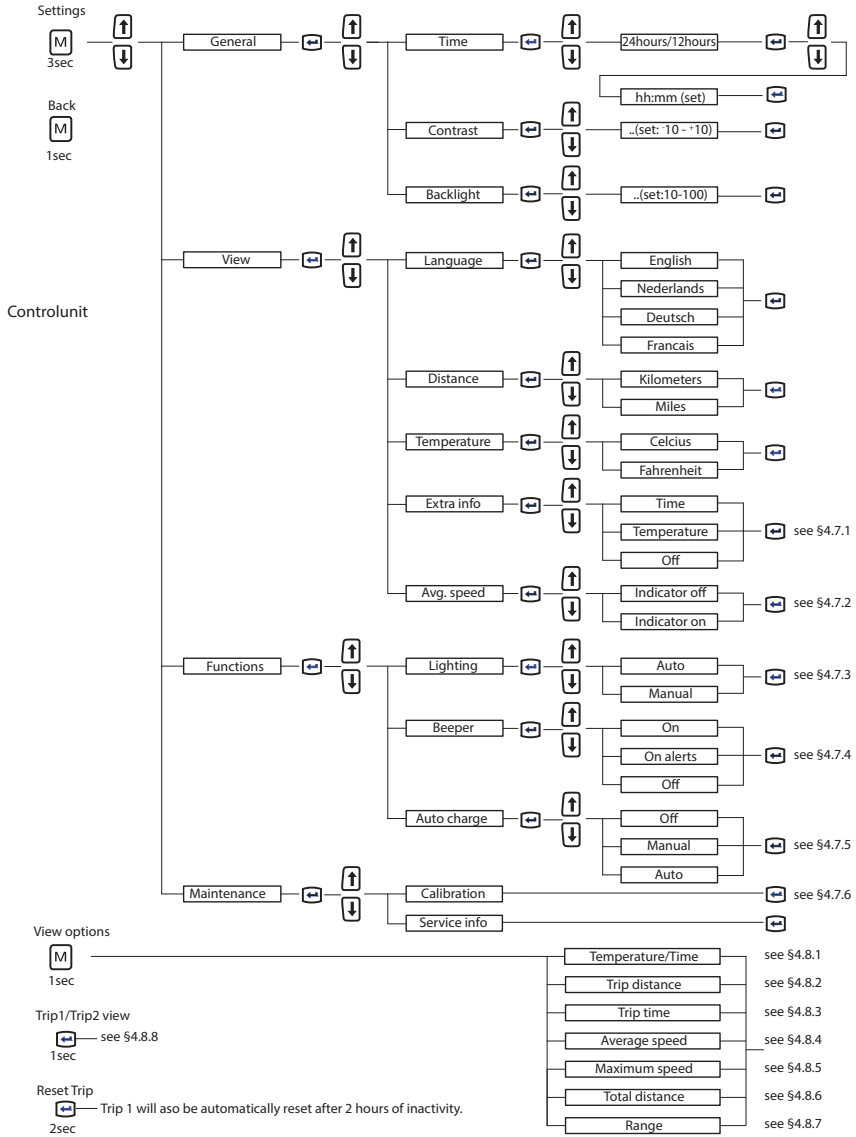
4.5 Set the support

Press the up (L) or down (N) button to set the support (B).

Ride programme:
1. ECO
2. CRUISE
3. TOUR
4. SPORT
5. POWER



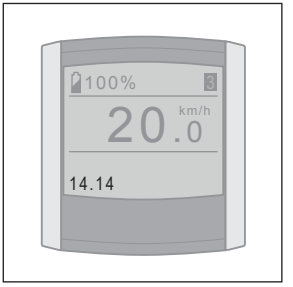
4.6 Menu overview



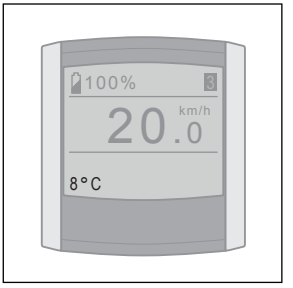
4.7 Menu setting explanation

4.7.1 Extra information

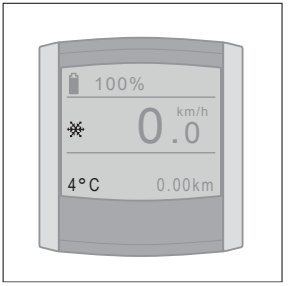
With this option you can indicate whether you want to see extra information in the display. The chosen option is shown as a standard at the bottom left of the display. If you select Time, the time will be displayed on the left at the bottom of the display as standard. Temperature is then shown under display options.



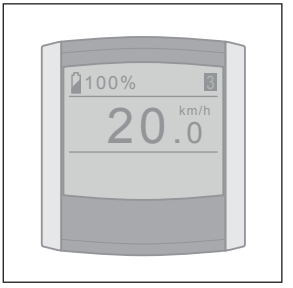
If you select Temperature, the temperature will be displayed on the left at the bottom of the display as standard. Time is then shown under display options.



The display will show a frost symbol when the outside temperature is 4°C or lower. When this symbol is shown on the display, the road surface may be slippery. Adjust your speed to this.
The range of the battery pack can decrease considerably when the ambient temperature is this low.



When you select Off, the room at the bottom left of the display remains empty. Both Time and Temperature will then be shown under display options.

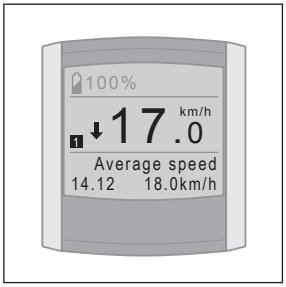


4.7.2 Indicator Average speed

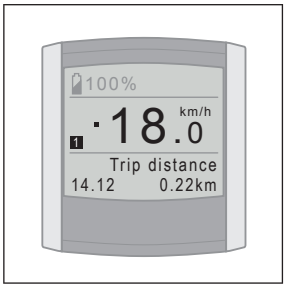
The indicator for average speed indicates, when cycling, whether the current speed is above or below the average speed of the ride.

Arrow upwards means: current speed is above the average speed of the ride.

Arrow downwards means:
current speed is below the average speed of the ride.



Block means:
current speed is almost the same as the average speed of the ride.



With the option Average Speed you indicate whether you want to show the indicator in the display or not.

4.7.3 Lighting

You can set whether you wish the lights to be switched on automatically or whether you wish to do this manually under Lighting.
If you select Auto, the bicycle lighting will be switched on and off automatically. A light sensor will continuously measure the quantity of light and will switch the lights on and off based on this.
If you select Manual, the bicycle lighting will only be switched on or off when you use the lights button on the control unit.

4.7.4 Beep Signals

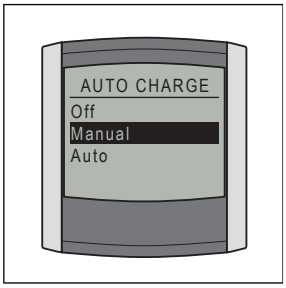
You can set whether and when you wish to hear beep signals under Beepers.
If you select On, the display will emit five long beeps when there is a message on the display. In addition, you will also hear a short beep signal when you press the control unit buttons, after calibrating and after resetting a ride.
If you select On alerts, the display will emit five long beep signals when there is a message. Your display will not emit beep signals with this setting when the control unit buttons are pressed, after calibrating and after resetting a ride.
If you select Off, the display will not issue beep signals when operating the control unit nor when there are alerts, after calibrating and after resetting a ride.

4.7.5 Automatic Charging

With this function, the E-bike automatically generates energy when no pressure is being exerted on the pedals. This allows the battery pack to recharge while you are cycling.

To use the function, you first have to switch it on via the display menu. You can then use the set button ↵ to activate or deactivate automatic charging. Automatic charging works up to about 80% capacity and up to about 35 km/h.

Turning on automatic charging
You can turn on automatic charging by selecting (in this order) *Functions, Auto Charge and Manual or Automatic* in the display menu. The selected menu setting will apply until you change it again in the display menu.

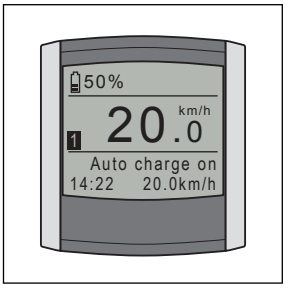


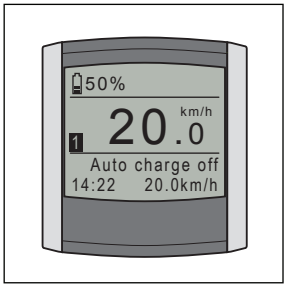
NB: When you turn on automatic charging, the set button ↵ loses its toggle function between Trip 1 and Trip 2 (see 4.8.8).

Activating automatic charging

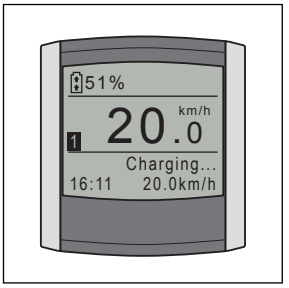
Manual
If you select the *Manual* option via the display menu, automatic charging will be inactive when you turn on the E-bike. You can activate the automatic charging, when pedal assistance is engaged, by pressing briefly on the set button ↵. The message "Auto Charge on" will appear temporarily.
The function will then remain active until the E-bike is switched off (and the brand logo disappears). If you want to deactivate automatic charging during the journey, press the set button ↵ briefly again. The message "Auto Charge off" will then appear temporarily.

Automatic
If you select the Automatic option via the display menu, *automatic* charging will be active as soon as you engage the pedal assistance. If you want to deactivate automatic charging during the journey, press the set button ↵ briefly. The message "Auto Charge off" will then appear temporarily.

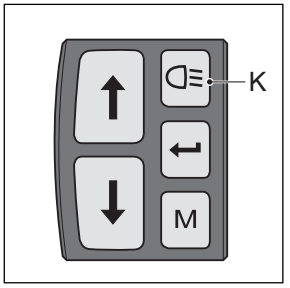




When automatic charging is activated and no pressure is being exerted on the pedals, the battery pack will be recharged automatically. When charging takes place, you will feel a slight resistance against the motor. The message "Charging…" and a plus-sign or two arrows will appear in the battery icon (depending on the type of display).



4.7.6 Calibration



If the peddling assistance is reduced in due course, the electronics may have to be calibrated.

1. Stand next to the bicycle.
   Do not exert force on the pedals.
2. Switch off the lights (K).
3. Keep the lights button pressed for at least two seconds until the message is issued that the calibration has been completed.

For continued comfortable pedal assistance,we advise you to calibrate the E-bike once per month.

4.8 View options

By briefly pressing the MODE button, you decide what you want to show at the bottom right of the display. All possible display options are briefly explained below.

4.8.1 Time / Temperature

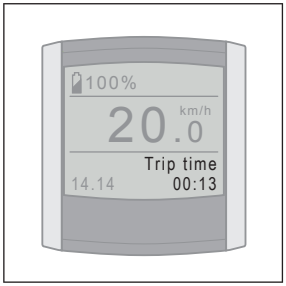
With menu settings you can select whether want to see Time, Temperature or nothing as a standard at the bottom left of the display (see § 4.7.1).
The non-selected option(s) will then be placed automatically under display options.

4.8.2 Trip distance

The trip distance measured from the moment that you start cycling.
For resetting the “Trip distance” see § 4.8.8.

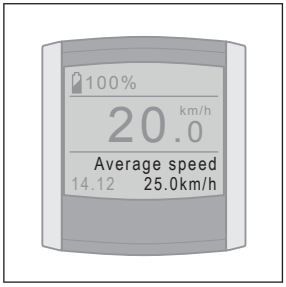
4.8.3 Trip time

The trip time measured from the moment that you start cycling.
For resetting the “Trip time” see § 4.8.8.



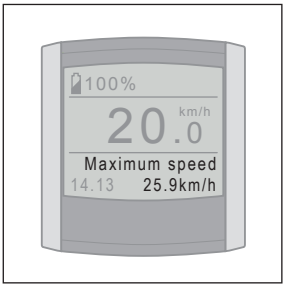
4.8.4 Average speed

Average speed measured over the cycled distance.
For resetting the “Average speed” in § 4.8.8.



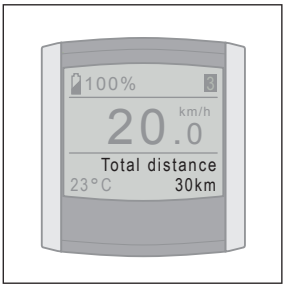
4.8.5 Maximum speed

Maximum speed measured over the cycled distance.
For resetting the “Maximum speed” see in 4.8.8.



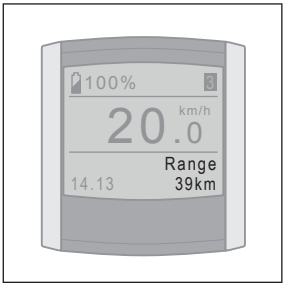
4.8.6 Total distance

Total distance measured from the moment that you start cycling.
It is not possible to reset the total distance.



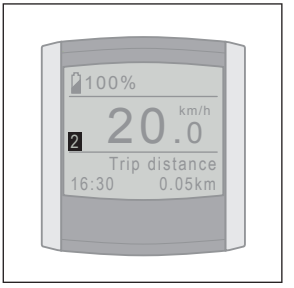
4.8.7 Range

The range shows how many kilometres you can still cycle using peddling assistance. The range is calculated on the basis of actual and historic consumption in combination with the charging level of the battery pack.



4.8.8 Trip 1 and Trip 2

The Trip distance, Trip time, Average speed and Maximum speed are linked to each other and are kept track of twice, that is, in Trip 1 and Trip 2. You can select between the view of Trip 1 and Trip 2 on the display by pressing theset button briefly. Resetting Trip 1 will be automatic when the bicycle is not used for more than



2 hours. Trip 1 can also be reset manually by keeping the set button  pressed for a long time. You can only reset Trip 2 manually by keeping the set button  pressed for a long time.

5 Range indication table

The range indicates how many kilometres one can ride with a fully-charged battery pack. In the case of a riding program with low support (Eco, for example), you have to ‘pedal more’, with the result that you demand less energy from the e-bike and the battery pack’s charge will last for longer. By contrast, with a high level of support (for example, Power), the e-bike will use up more energy, with the result that the battery pack’s charge will not last as long.

D-Light front wheel motor (25 Nm)										
	Eco (km)		Cruise (km)		Tour (km)		Sport (km)		Power (km)	
Battery pack	min	max	min	max	min	max	min	max	min	max
317 Wh	40	100	30	50	25	45	20	40	15	25
418 Wh	60	140	45	75	40	60	30	50	20	40
522 Wh	70	170	55	85	45	75	35	65	30	50
612 Wh	85	200	60	100	55	85	40	80	35	65

XHPL rear wheel motor (40 Nm)										
	Eco (km)		Cruise (km)		Tour (km)		Sport (km)		Power (km)	
Battery pack	min	max	min	max	min	max	min	max	min	max
317 Wh	50	120	25	60	25	50	15	45	15	35
418 Wh	70	165	40	85	35	70	20	60	20	45
522 Wh	90	215	50	110	45	95	30	80	30	65
612 Wh	105	250	60	125	55	110	35	95	35	75

XHP rear wheel motor (50 Nm)										
	Eco (km)		Cruise (km)		Tour (km)		Sport (km)		Power (km)	
Battery pack	min	max	min	max	min	max	min	max	min	max
317 Wh	65	125	45	75	40	65	25	40	25	40
418 Wh	95	170	65	105	60	90	35	60	30	50
522 Wh	120	220	85	130	75	115	50	80	40	70
612 Wh	140	260	100	155	90	135	60	90	50	80

Middle motor (80 Nm) *										
	Eco (km)		Cruise (km)		Tour (km)		Sport (km)		Power (km)	
Battery pack	min	max	min	max	min	max	min	max	min	max
317 Wh	60	80	40	60	30	50	20	40	15	35
418 Wh	90	110	60	80	35	55	30	50	20	50
522 Wh	115	145	75	105	45	65	40	60	30	60
612 Wh	130	170	80	120	50	80	50	70	35	65

Double E / Double i (tandem) (30 Nm)										
	Eco (km)		Cruise (km)		Tour (km)		Sport (km)		Power (km)	
Battery pack	min	max	min	max	min	max	min	max	min	max
317 Wh	40	60	35	60	30	50	25	50	15	35
418 Wh	55	80	45	75	40	70	35	65	25	45
522 Wh	70	100	60	95	50	85	45	80	30	60
612 Wh	85	120	70	115	60	105	50	95	35	70

**These range numbers apply to e-bikes provided with the riding program as installed in the factory.*

The range depends on various factors and is influenced by the following:

- Capacity (Ah) and voltage (V) of the battery pack;
- Pedal assistance level;
- Pedal assistance mode or riding program, ask your dealer about the possibilities;
- Ambient temperature;
- Wind force;
- Tyre pressure (at least 4 bar);
- Cycling speed;
- Weight of the cyclist and the load;
- Cycling behaviour;
- Road conditions;
- Use of gears.

The range will perceptibly decrease as the battery pack gets older.
Also see par. 3.6.7 for the specification of the range on the display.

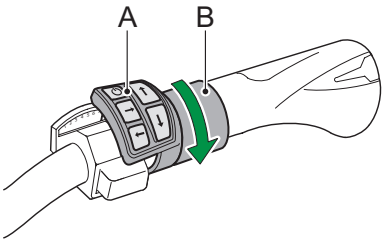
6 Throttle

6.1 Throttle

The throttle (B) can be used as soon as the assistance has been switched on. You can accelerate by turning the throttle toward you.
When using it for the first time, try the throttle carefully so as to become familiar with the power generated by the throttle.

A Control unit
B Throttle

The control unit and throttle can be installed both on the left or right. They will work in the same way on either side.



6.2 Boost function

The boost function can be used as soon as the e-bike has been switched on*. By turning the throttle toward you in the 1, 2, 3, 4 or 5 position, you will get a boost. This will fill as a "push in the back" . When using it for the first time, try the boost function carefully so as to become familiar with the power generated by the boost function.
The boost function is linked to the assistance levels. The effect of the throttle can be strongly felt in the ECO position while it is felt the least in the POWER position. Using the boost function at low speeds costs a lot of energy. This will influence the e-bike's range.

Extra assistance when riding from a standstill
You can use the boost function when riding from a standstill. Parking assistance will provide assistance, without pedaling, up to 3 km/hour. After that, you must pedal yourself to get assistance.

** When you start cycling, the assistance is at 0 and the boost function will not operate. To make use of the boost function, the assistance must first be switched on by pressing ↑ or ↓ , so that it is set at 1, 2, 3, 4 or 5.*

Extra assistance while cycling
The boost function can provide an extra impulse while cycling. This is handy when overtaking someone, or cycling up a hill.

6.3 Parking assistance*

The throttle assists up to approximately 3 km/hour when you are walking alongside the bike. Useful when you take the e-bike from your shed or basement so that you do not have to push the e-bike all by yourself.

Display brandspecific
The parking assistance can be used as soon as you put the e-bike in position P. This position can be reached in the same way as you change your position (up and down button). Before the first position you'll find position 0 (off) and before that you'll find position P.

Display ION
The parking assistance can be used as soon as the e-bike has been switched on**. By turning the throttle toward you in the 1, 2, 3, 4 or 5 position, you will get a boost and you can use the parking assistance. The speed and power of the boost will depend on the selected position. A higher position will deliver less power and more speed. The speed will always be lower than the legal speed limit.

** Parking assistance is not a standard feature on all e-bikes.*
*** When you start cycling, the assistance is at 0 and the parking assistance will not operate. To make use of the parking assistance, the assistance must first be switched on by pressing ↑ or ↓ , so that it is set at 1, 2, 3, 4 or 5.*

7 Technical data

7.1 Weight and performance

	300 Wh series	400 Wh series	500 Wh series	600 Wh series
Capacity (Ah)	8.8	11.6	14.5	17
Weight of battery pack (kg)	3	3	3.5	3.5
Maximum power (W)	250	250	250	250
Charging time 80% (hrs)	3.5	5	6	6.5
Charging time 100% (hrs)	4.5	6	7.5	8.5
Voltage (V)	36V	36V	36V	36V
Energy (Wh)	317	418	522	612

7.2 Temperature limits for battery cells

Status	Minimum [°C]	Maximum [°C]
While charging	0	45
During use	-15	60

7.3 Charger data

Input voltage	100-240 Vac (50-60Hz)
Input power	Max. 150 W
Input current	Max. 1,5 A

8 Diagnosis messages

8.1 Indication on the display

Contact your dealer shop if the message is not listed in the manual.

Do not remove the rear wheel. This may affect the performance of the bicycle.

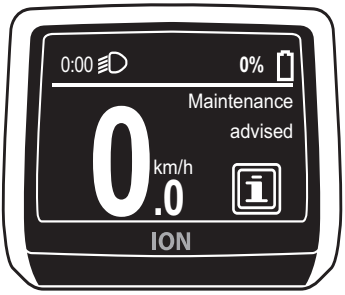
Message	Diagnosis	Solution
E01	Battery pack flat	Charge the battery pack.
E03	Battery pack damaged	Please contact your dealer.
E05	Bad motor connection	Switch on the pedal assistance and check if the battery pack is placed correctly.
E06	Short circuit in lighting	Please contact your dealer.
E07	Motor outside temperature range	The motor is loaded to heavily. Allow it to cool down so that you can continue cycling.
E14	Display is not recognised	The display needs resetting. Take your bicycle to the dealer (see also §8.3)

Message	Diagnosis	Solution
E16	Constant activity of the power sensor	Calibrate by holding the light button pressed for 5 seconds.
E19	Battery pack outside the temperature range	Wait until the battery pack is within the temperature range. The charging will then automatically continue.
E20	Service needed	Contact your dealer for the planned maintenance service.
E23	Serial number motor incorrect	This battery pack has not been installed on the bicycle. Please contact your dealer.
E30	No communication with torque sensor	Turn on the pedal assistance and check if the battery pack is placed correctly.
E32	Battery electronics are too warm.	Let the battery pack cool down and switch on the pedal assistance again.
E34	Control unit does not support accessories	Please contact your dealer.
E35	No communication with throttle	Please contact your dealer.
E39	Wrong charger connected	Connect the correct charger.
E45	Max temperature of motor controller reached	Allow the motor controller to cool before switching on support again.
E55	Unknown serial number of the motor or error in motor communication	Please contact your dealer.

Message	Diagnosis	Solution
E56 'Check speed sensor'	Problem with speed sensor	Check the speed sensor and magnet in the rear wheel, also see §7.4. Problem not solved? Then contact your dealer.
E58	Problem with speed measurement	Check that the speed sensor is correctly connected.
E59	Shift sensor disabled.	Please contact your dealer.

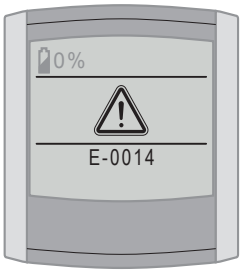
8.2 Service

The *Maintenance advised* message may be displayed on the display after a specific distance. This message will be displayed when starting the system and briefly during cycling.
Your dealer can set the distance after which this message should be displayed.
You can see which distance you still need to cover until the next service in the *Maintenance* menu.
When this message is displayed, we recommend contacting your dealer.

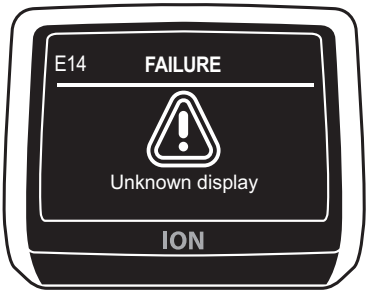


8.3 Use of other displays

The display acts as an immobilizer and, therefore, you cannot install of fully use every display on your e-bike.



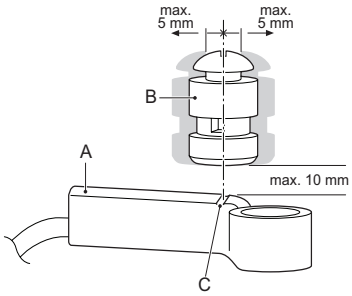
A unique code has been saved on your display that matches the related e-bike. If you want to switch on the assistance or lights, the system will check whether the display and the bike form a unit. If this is not the case, error message E14 will be displayed and the assistance and lights cannot be switched on. If you have two e-bikes with the same display type, you can register both displays on both bikes. Your certified e-bike dealer can perform this for you. Both displays will then work on both bikes.



8.4 Speed sensor

The speed sensor only works on e-bikes with a middle motor.

Your e-bike's system needs information to function properly. The speed information is obtained by the rear wheel sensor (A) (behind the chain casing) and a magnet (B) in the wheel. Sometimes the magnet becomes dislodged, for instance when cleaning the e-bike or when loading/unloading the e-bike on the bicycle carrier. If the magnet becomes dislodged, then the speed can no longer be measured. Your display will indicate 'Check speed sensor'. In this case you can still cycle



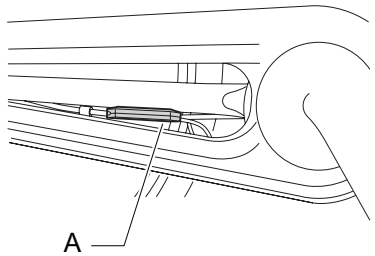
English

home safely, or take your e-bike to the dealer, but only with limited speed and assistance.
The problem can be solved by returning the magnet to the correct position, see the figure below. The 'Check speed sensor' indication will then automatically disappear. If you have returned the magnet to the correct position, but the 'Check speed sensor' indication remains, then contact your dealer.

8.5 Shift sensor

The shift sensor is only mounted on e-bikes with a central motor.*

The shift sensor (A) allows for smooth gear shifting. This provides more comfort and less wear to components, like the chain.
The sensor, which is assembled around the gear cable, receives the shift information. On most models, the sensor is positioned on the rear fork next to the rear wheel. See appended image. This, however, may vary per bike model. The words 'ION Smart Shift Sensor' are stated on the sensor.



If there is a defect in the shift sensor, message ‘E59 Shift sensor disabled’ will appear on your display. This message will only be displayed once until the system has been switched off and on. If this error message appears, you can still cycle with assistance, but the gears won’t shift so smoothly.

**Optional.*

9 Warranty conditions and legal requirements

Guarantee conditions
The following guarantee conditions supplement the applicable legal rights.

When does the guarantee apply?
The supplier of the battery pack will give a guarantee for any material or construction faults concerning the battery pack if the following condition is met:
* You only have a right to the guarantee if you can provide a certificate of guarantee or a receipt. The guarantee period commences on the day of purchase.
* The guarantee will be null and void when deep discharge is established.

Guarantee period of the e-bike
A 2-year factory guarantee is given with regard to the electrical parts of your e-bike (display, drive system and battery pack). For the guarantee period for the other parts refer to the guarantee provisions as specified in the instruction booklet of the manufacturer.

Extended guarantee
You can purchase an additional guarantee period to extend your guarantee for three more years within the first 2 years of purchasing your new e-bike. Contact your dealer for the conditions.

Do not clean the bicycle with a high-pressure spraying pistol. A too powerful jet of water may damage the electrical parts of your e-bike. This will make the guarantee null and void.

Legal requirements
The described conveyance is a bicycle according to European legislation, because the bicycle complies with the following rules:
* The support is only active when the user peddles too.
* The support is active for up to 25 km/hour.
* The supplied power is maximum 250 W.

The e-bike is an EPAC (Electrically Power Assisted Cycle) in accordance with EN15194.

Compliance

The manufacturer of your e-bike declares that the product meets all requirements and other relevant provisions of directives 2004/108/EC and 2006/42/EC. The declaration of compliance is attachted to the e-bike.

Environment

We recommend that you return a faulty bicycle battery pack to your dealer in accordance with the environmental regulations for collecting and processing batteries drawn up by the Ministry of Housing, Spatial Planning and the Environment. The dealer is required to accept the battery and must ensure that it is processed further by the manufacturer.

Periodical maintenance

Your e-bike needs regular service. Your dealer can advise and inform you on how to make optimum use of your bicycle.
You can also contact your dealer for software updates or for an analysis of the diagnosis form containing the exact details of how you use your bicycle.