



User manual extract for the Model Year 2020

TWENTY E-POWER

TWENTYFOUR-SIX E-POWER

TWENTYFOUR E-POWER PRO

TWENTYSIX E-POWER PRO

TWENTYSEVEN_s E-POWER PRO



ben-e-bike

Dear parents,

This is only an extract of the complete manual of our BEN-E-BIKE's. The full version can be downloaded from our website "www.ben-e-bike.net!"

VALIDITY

This instruction manual is valid for BEN-E-BIKE's of model year 2020. The safety instructions for proper battery use are explained at the end of this manual.

MARKING OF SAFETY ADVICE

The purpose of warnings is to draw your attention to possible dangers. These warnings require your full attention and understanding of the statements. Failure to follow a warning may result in injury to your child or others. The warnings alone do not prevent hazards. You and your child should follow all warnings to avoid risks when using the BEN-E-BIKE.

There are warnings in these instructions in the following classifications::

WARNING



The word "WARNING" indicates a hazard with a medium or high degree of risk, which, if not avoided, may result in death or serious injury..



The Word „CAUTION“ indicates a hazard with a low level of risk which, if not avoided, may result in minor or moderate injury.



The word „NOTE“ warns of possible material damage.

THE TFT COLOUR DISPLAY

The TFT colour display of the BEN-E-BIKE (for the TWENTY E-POWER only available as an option) controls all functions of the electric drive. The three pushbuttons switch on the motor and regulate its power output. The functions that are important for daily use are explained below.



Explain to your child that he or she should solely focus on the road traffic instead watching the display!

The push buttons and display features:



1. on/off push button
2. push button „+“
3. push button “-“
4. display of the assistance level („0“ to „5“)
5. driving speed
6. Total distance
7. single trip distance
8. bar indicator for battery status

Features

a) Switching the display on and off

! ADVICE

It is necessary to switch on the battery first, before you can activate the display!

Press the red switch on the battery:



If the red switch on the battery was already switched on and the battery was not used for more than 30 minutes, the red switch must be switched off and on again after approx. two seconds!

To activate the display keep the middle push button pressed for more than 2 seconds:



Likewise, this button must be pressed for more than 2 seconds to turn off the system again. If the Ben-E-Bike is parked and no button is pressed on the display or the crank isn't spun for more than 5 minutes, the display automatically shuts off to save the battery.

b) Adjusting the motor power

With the two keys "+" and "-" you can set how strong the motor will support. The selected support level is shown in the top line of the display:



After switching on, the assistance level is always set to "0". This means that the motor is still off and the BEN-E-BIKE drives like a normal bike. Remember that a BEN-E-BIKE can be pedalled more easily than most children's bicycles, even without motor support. So you do not always have to choose one of the levels 1 - 5 to drive fast enough!

Now choose an appropriate support level depending on the path conditions. Here are some tips on which level is best for each situation:

- levels "0" and "1" are perfect for driving in the plane
- levels "2" and "3" are suitable for light to medium ascents or strong headwind
- level "4" should be sufficient even for steep ascents.
- the highest level "5" is only recommended for extreme "off-road" ascents.

Note: with our PC software, the strength of each support level can be customized!

! ADVICE

Always remember that the higher the motor assistance level is set, the quicker the battery will be discharged. So, if your child drives for comfort only at the highest level "5", the battery is discharged very quickly.

c) Turning the lights on

If your bicycle dealer has installed a front and tail light on your BEN-E-BIKE and connected it to the 6Volts output of the motor controller, you can turn it on or off via the display. To do this, press the "+" button for more than 1 second. A small icon on the display indicates when the light is turned on.



! ADVICE

LED headlights need so little power that the battery is therefore hardly charged. So you can confidently activate the light even during daylight conditions for better visibility.

d) Activating the "walk-assist"

Every BEN-E-BIKE is equipped with a so-called "walk-assist". This can be very convenient if the bike is needs to be pushed up a hill that is so steep that your child can not drive it anymore. To do activate the walk-assist, press the "-" button and keep it pressed. The walk-assist will be activated with a delay of approx. one second. The button must be kept pressed in any case - otherwise the walk-assist will stop immediately. The walk-assist supports up to a maximum speed of 6 km / h - if it is active, an icon on the display is shown instead of the assistance level.

The speed of the walk-assist can be adjusted via the PC software - the factory setting is 4 km/h.

e) Battery status

The display of the BEN-E-BIKE indicates the charging status of the battery. If all five segments are shown, the battery is fully charged:



If the battery is discharged while driving, the length of the bar is reduced and its colour also changes. When the battery is fully charged, the bar is shown in green, the colour changes to orange in the medium charge state and then to red when the battery is very flat. When the bar has completely disappeared, the battery is already so far discharged that only a few kilometres can be driven with motor support. As soon as the whole symbol starts to flash, the battery is completely discharged and the motor support is deactivated until the battery is recharged.

f) Display of the maximum speed, average speed and total driving time

If the maximum speed (**MAX**) shall be shown at the bottom left of the display, the on / off button needs to be pressed briefly once. When the on / off button is pressed again, the average speed (**AVG**) is shown at the bottom left. Pressing the on / off button again displays the total driving time (**Time**).

The display can show a maximum of "999.9km" for the daily kilometres - afterwards this setting needs to be reset.

The values for average speed, maximum speed, daily mileage and daily travel time can be reset to "0" in the setup menu.

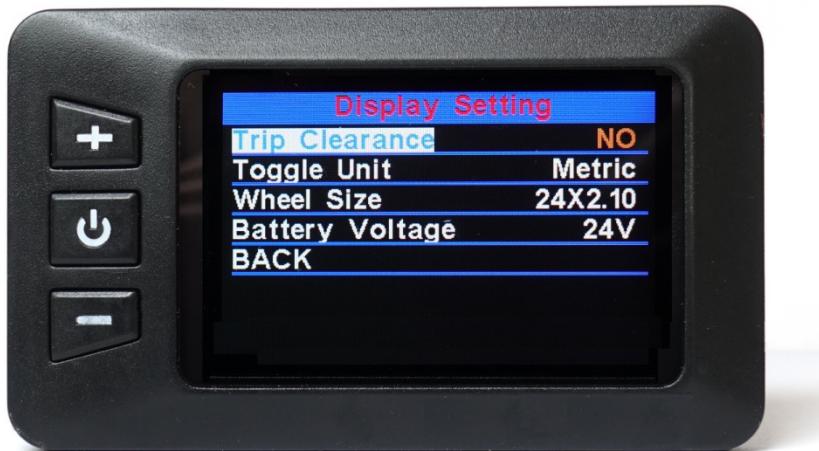


These display features should not be called while driving - this distracts your child too much. So please check the average speed and the maximum speed only when stationary!

g) "Display Setting" menu

With the display switched on, hold down the "+" and "-" buttons simultaneously to access the "Display Setting" menu. You can make the following settings there:

- Reset the trip display counter as well as the maximum and average speed display
- Switching the unit between "kilometres" and "miles"
- Setting the tire size
- Setting the battery type (24 volts or 36 volts)



Use the "+" and "-" buttons to select the desired menu item. Then briefly press the on / off button to edit the relevant menu item (this is then displayed in yellow instead of white font). Then use the "+" and "-" buttons to make the setting and confirm using the on / off button.

There are three ways to exit the setting menu:

- automatically after 30 seconds
- keep the on / off button pressed for longer than 2 seconds
- select the menu item "BACK" and confirm briefly with the on / off button.

THE LED DISPLAY

The LED display of the BEN-E-BIKE (standard only with the TWENTY E-POWER) controls all functions of the electric drive. The three pushbuttons switch on the motor and regulate its power output. The functions that are important for daily use are explained below.

The push buttons and display features:



1. on/off push button
2. push button „+“
3. push button “-“
4. LED bar which indicates the status of the battery

Features

a) Switching the display on and off

! ADVICE

It is necessary to switch on the battery first, before you can activate the display!

Press the red switch on the battery:



If the red switch on the battery was already switched on and the battery was not used for more than 30 minutes, the red switch must be switched off and on again after approx. two seconds!

b) Adjusting the motor power

With the two keys "+" and "-" you can set how strong the motor will support. The selected support level is shown in right LED bar:



After switching on, the assistance level is always set to "0". This means that the motor is still off and the BEN-E-BIKE drives like a normal bike. Remember that a BEN-E-BIKE can be pedalled more easily than most children's bicycles, even without motor support. So you do not always have to choose one of the levels 1 - 5 to drive fast enough!

Now choose an appropriate support level depending on the path conditions. Here are some tips on which level is best for each situation:

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Note: with our PC software, the strength of each support level can be customized!

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Always remember that the higher the motor assistance level is set, the quicker the battery will be discharged. So, if your child drives for comfort only at the highest level "5", the battery is discharged very quickly.

c) Turning the lights on

If your bicycle dealer has installed a front and tail light on your BEN-E-BIKE and connected it to the 6Volts output of the motor controller, you can turn it on or off via the display. To do this, press the "+" button for more than 1 second. A small icon on the display indicates when the light is turned on.



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LED headlights need so little power that the battery is therefore hardly charged. So you can confidently activate the light even during daylight conditions for better visibility.

d) Activating the "walk-assist"

Every BEN-E-BIKE is equipped with a so-called "walk-assist". This can be very convenient if the bike is needs to be pushed up a hill that is so steep that your child can not drive it anymore. To do activate the walk-assist, press the "-" button and keep it pressed. The walk-assist will be activated with a delay of approx. one second. The button must be kept pressed in any case - otherwise the walk-assist will stop immediately. The walk-assist supports up to a maximum speed of 6 km / h - if it is active, the LED's of the right bar are illuminated one after the other.

The speed of the walk-assist can be adjusted via the PC software - the factory setting is 4 km/h.

e) Battery status

The left LED bar of the display indicates the charging status of the battery. If all five LED's light up, the battery is fully charged:



If the battery is discharged while driving, the individual LEDs go out gradually. If only one LED lights up, the battery is already so far discharged that only a few kilometres can be driven with motor support. As soon as this last LED starts to flash, the battery is completely discharged and the motor support is deactivated until the battery is recharged.

THE PC SOFTWARE

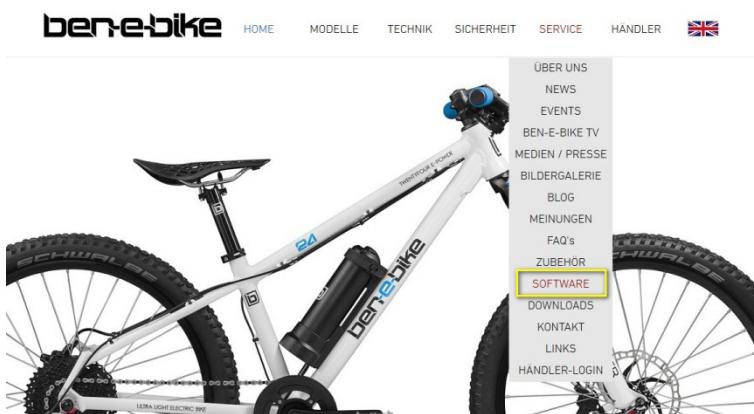
All parameters of the motor control of all BEN-E-BIKE's of the model year 2020 can be set via an easy-to-use PC software. The interface between the PC and the controller of the Ben E-Bike is a USB dongle which is included in delivery of each bike.

! ADVICE

The software is solely available for download from our website. Please note that it only works in combination with Windows operating systems. MacOS will not be supported!

Download of the software "MControl"

Visit our website "www.ben-e-bike.net" - here you will find under the menu item "SERVICE" the sub-item "SOFTWARE".



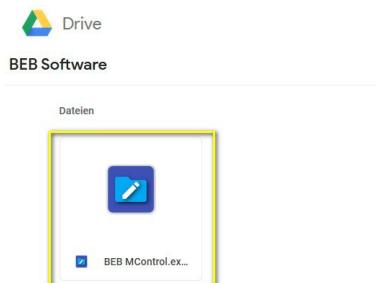
Click on the link provided there:

Software

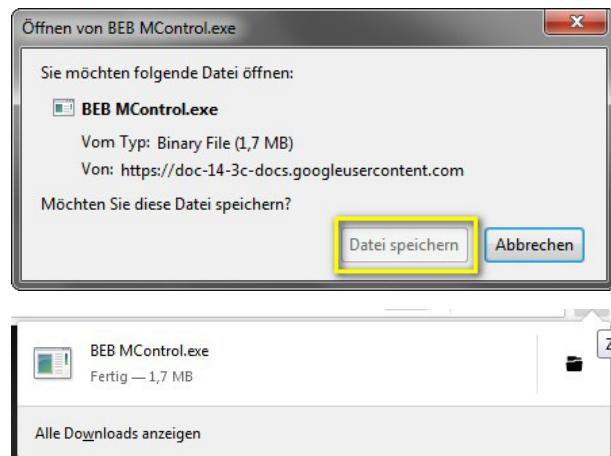
Here you can get the software to adjust the engine control of the TWENTY E-POWER (model year 2020), TWENTYFOUR-SIX E-POWER, TWENTYFOUR E-POWER PRO, TWENTYSIX E-POWER PRO as well as the TWENTYSEVEN5 E-POWER PRO optimally to the needs of your child:

- [Download the software package](#)

You will be routed directly to our server. Select the desired language and click on the respective installation file:

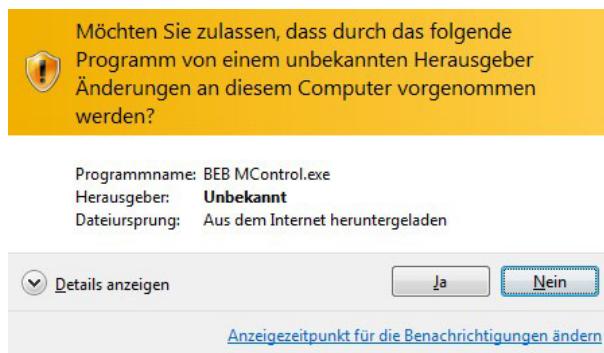


Download the file and save it on your PC:



Installation of the software "MControl"

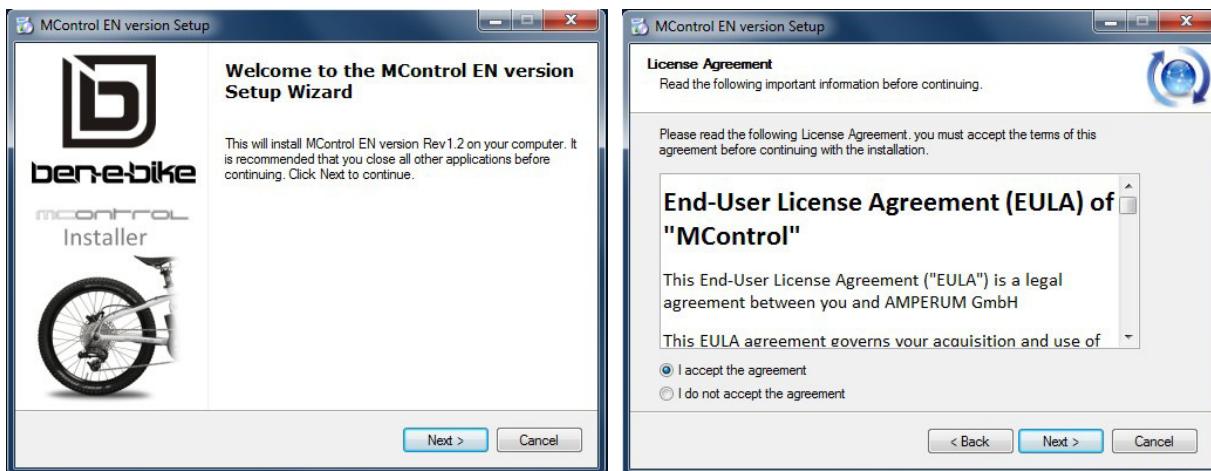
Run the installer by confirming the hint below:



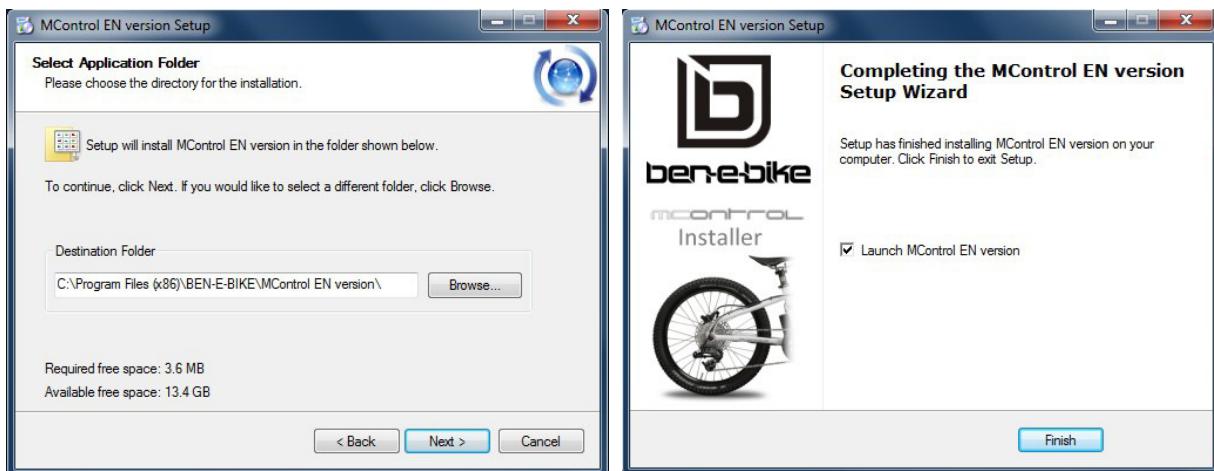
Select the language for the installation routine - this setting has no effect on the displayed language of the software HMI.



Confirm the license agreement:



Choose the location on the hard drive of your PC where the software shall be installed - this completes the installation process:



Connecting the USB interfaces to your PC

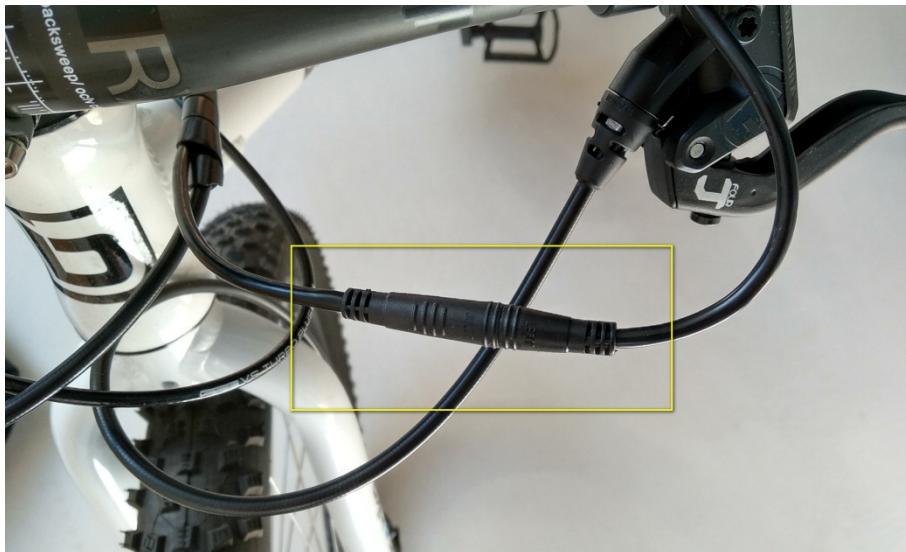
The following interface can be found in the accessory pack of your Ben-E-Bike:



Plug the USB connector into a free USB port of your PC. There's no need for any additional driver software as this interface uses a standard driver that is already included in the Windows operating system. As a result, it only takes a few seconds for the interface to be recognized once it has been connected to your PC.

Connecting the USDB interface to your Ben-E-Bike

Your Ben-E-Bike has a connector between the display and the motor control which you can disconnect (note: extraction force is rather high!):



Now hook up the USB interface instead of the display.

! ADVICE

All Ben-E-Bike's of the first generation with the larger LC-display have the same connector directly on the display.

The USB interface must not be connected to this LC-display!

Neither the USB interface nor the "MControl" software are suitable for the LC-display!

Starting the "MControl" software

The battery on the Ben-E-Bike must be switched on, so that the motor controller and the interface are supplied with power.

! ADVICE

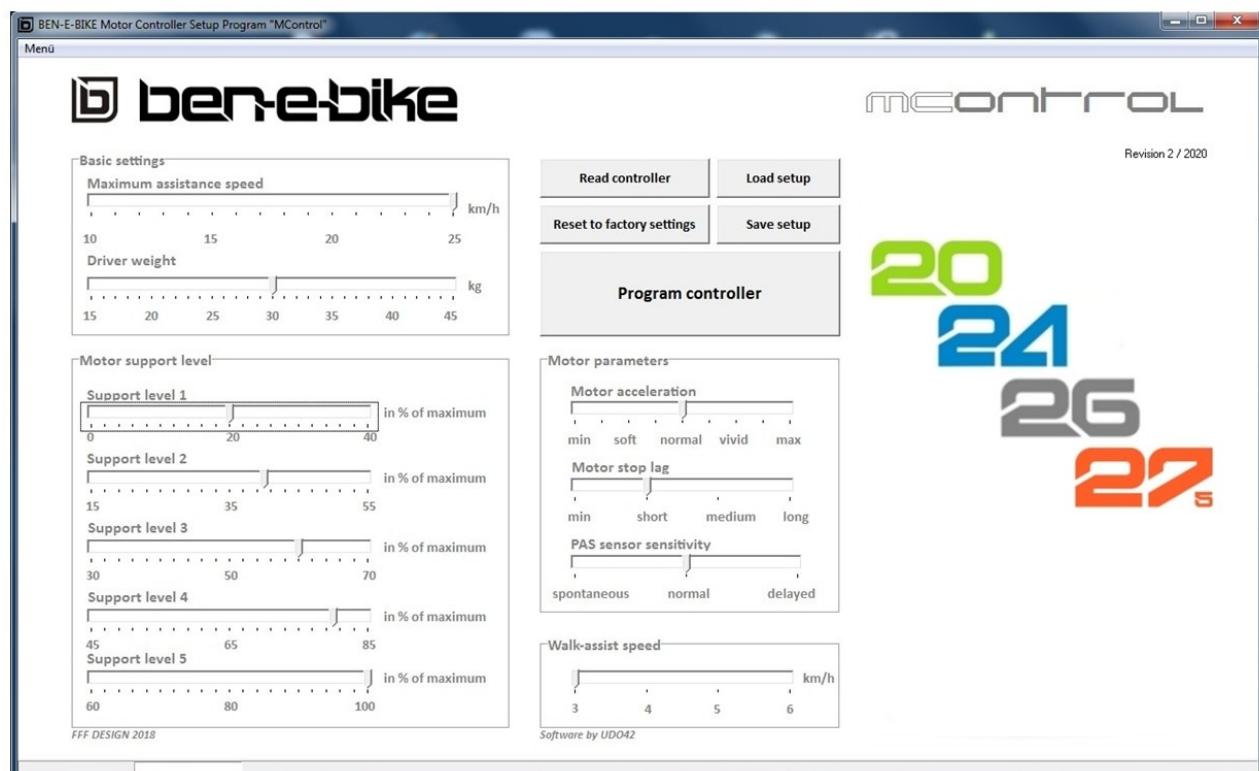
If the red switch on the battery was already switched on and the battery was not used for more than 30 minutes, the red switch must be switched off and on again after approx. 2 seconds!

Then you have to start the software - the installation routine should have created a "shortcut" on the desktop of your PC:



Simply press the shortcut with your computer mouse twice and you are ready to go.

The HMI of the "MControl" software



! ADVICE

By default, all values are already set meaningfully so that in most cases it is sufficient to adapt the basic settings "maximum assistance speed" and "driver weight". All other parameters are rather a "fine tuning" and can be determined empirically.

The individual function blocks of the "MControl" software

Read controller

After starting the software, you should first read out the controller so you can see what values are stored there. At the same time, the software recognizes which type of battery is installed and adapts the HMI accordingly.

Reset to factory settings

This button should be used when you have "misaligned" all settings so that you are no longer satisfied with the performance and want to start all over again.

Load setup

If you have already saved your own settings on your PC, you can load them from your hard disk by pressing this button.

Save setup

If you have found the perfect setup, then you should not only store it in the controller of the Ben E-bike, but also on the hard drive of your PC. After clicking the button, you can give the setup a name of your choice and, if necessary, change the memory location on your hard drive.

! ADVICE

Important: Saving the settings via the "Save setup" button saves only the parameters on the hard disk of your PC - the values are not transferred to the controller at the same time during this process. To do this, use the button described below!

Program controller

All settings made in the user interface of this software do not take effect until they have been transferred to the controller by pressing the "Program controller" button! If you quit the program before pressing this button, the previous parameters in the controller remain unchanged!

Maximum assistance speed

This parameter defines the maximum speed up to which the motor should support. This value does

not depend on the support level setting on the display! The adjustable maximum value depends on the battery of the BEN-E-BIKE (20 km/h for all TWENTYFOUR models and 25 km/h for the TWENTYSIX) and is adjusted automatically as soon as the software recognizes the battery type. To do this, the button "Read Controller" must be pressed once.

Driver weight

Set the weight of your child with clothing (and luggage) - the software automatically defines the maximum possible engine power accordingly. Especially if your child is particularly lightweight, it makes sense to limit the maximum engine power. However, the setting only gives a guideline value based on experience - the optimal setting should therefore be determined empirically.

Assistance level 1 - 5

Based on the maximum engine power set via the "Driver weight", the motor power for each assistance level can be changed individually. By default, we have chosen the following settings for the small 175Wh battery: 20% - 40% - 60% - 80% - 100%. The larger 250Wh battery comes with the following pre-defined settings: 15% - 30% - 50% - 75% - 100%. Within certain limits, these specifications can be adapted to the personal needs.

Motor acceleration

Here you can define whether the engine should deliver its power more gently or equally powerful. Especially for light children, who still have little driving experience, it may be useful to choose a gentle power output.

Motor stop lag

This parameter defines how long the engine will run after the pedal has come to a stop. The setting "short" corresponds to a lag of 0.25 sec., "long" corresponds to a lag of approx. 0.45 sec.

PAS sensor sensitivity

The BEN-E-BIKE is equipped with a 12-pole pedal sensor. This parameter determines how many poles the sensor must "sweep" until the motor responds to the movement of the pedal.

Walk-assist speed

Here you can define the speed of the walk-assist speed. Experience has shown that the typical value of 6 km / h, which has become standard for e-bikes, is sometimes too fast for children. "4 km / h" has proven to be the best value for most purposes.

SAFETY INSTRUCTIONS FOR BATTERY USE

Lithium-ion batteries are classified as so-called "Dangerous Goods Class 9" - therefore it is mandatory to follow the subsequent instructions carefully!

TURNING THE BATTERY ON

The battery needs to be switched on via the red button before it provides power for the display, controller and motor at its output. When switched off, the battery terminals are powered-off. Always turn off the battery when the BEN-E-BIKE is not in use or before removing the battery. The battery also recognizes by itself whether it is in use or not. As soon as no current is drawn for more than 60 minutes, the battery output switches off automatically. To restart, you must then turn off the red switch once and turn it on again after approx. 2 seconds!

**CHECK THE CHARGE CONDITION**

Shortly press the small button to activate the LED charging indicator. This will show the current state of charge for about 5 seconds. However, this display does not reliably reflect the actual state of charge. The 4-digit display may differ from the 5-digit bar graph in the display. If in doubt, rely on the display on the handlebar!

CHARGING THE BATTERY

Solely use the charger supplied with the Ben E-Bike. The charging port is located under the rubber cover on the top of the battery:



Carefully open the cover and insert the plug of the charger. Then connect the charger to an AC power outlet.

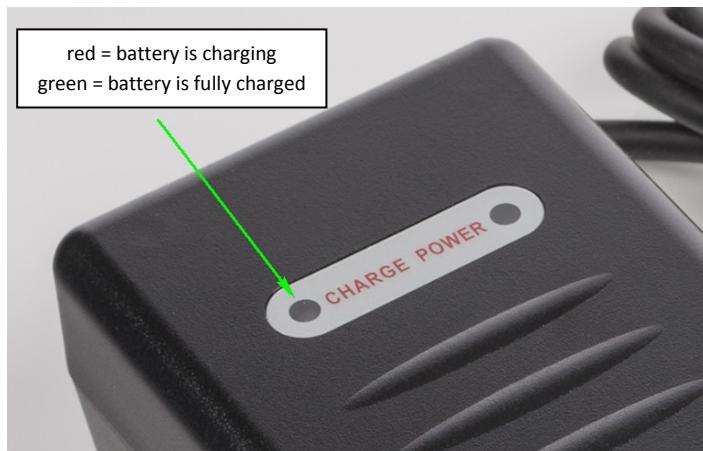


Solely charge the battery in dry conditions and at ambient temperatures of 0 ° C to 40 ° C. When charging, make sure that the battery is not exposed to direct sunlight and that there are no combustible materials in the vicinity. In addition, the battery should not be charged unattended for a long time. During charging, it is normal that the battery heats up slightly - but if you realize that the battery gets so hot that you can hardly touch it, stop the charging process immediately and contact a specialist dealer for assistance.



Using a charger other than the one supplied with the BEN-E-BIKE can not only destroy the battery, but also set it on fire!

As soon as the charging indicator on the charger changes from "red" to "green", the battery is fully charged and charging is completed. Remove the plug of the charger from the battery and close the charging port again with the rubber cover!



! ADVICE

It is not mandatory to remove the battery for charging.

! ADVICE

Risk of damage!

Avoid exposing the battery to extreme temperatures. Lithium-ion batteries are sensitive to excessive heat, because this can lead to irreversible damage. The battery itself has an integrated temperature protection circuit, which prevents the battery from overheating during heavy discharge. However, this protection circuit is ineffective against excessive ambient temperatures. We recommend to park the BEN-E-BIKE always in the shade during summer. If that isn't possible, remove the battery, take it with you and keep it safe.

A lithium-ion battery also does not like cold temperatures below 0 ° C because its capacity is significantly reduced. However, there is no permanent damage as long as the battery **is not exposed to temperatures below -25 ° C.**

REMOVAL OF THE BATTERY

The battery is reliably fixed in its holder via the rubber strap. To remove simply loose the rubber strap and then carefully pull out the battery. When replacing the battery, make sure it is aligned with the connectors in the battery holder.

STORING THE BATTERY

If the BEN-E-BIKE isn't used for a long time, it is best to remove the battery and store this in a cool place (between 10 - 20 ° C). The battery gradually discharges even when not in use - so recharging every 6 months is highly recommended. The battery has a protection circuit against deep discharge. However, this protection circuit needs minimal power and still discharges the battery, even if it already prevents the battery from being switched on.



If you simply leave the battery for many months, without controlling its state of charge, you risk a permanent destruction of the battery cells. As a rule, a lithium-ion battery is already sustainably damaged after one single deep discharge and can then no longer provide sufficient capacity.

MECHANICAL DEFECTS OF THE BATTERY

The housing of a BEN-E-BIKE battery is largely made of aluminium and therefore extremely robust. Defects caused by mechanical impacts are therefore likely to occur very rarely. However, if you find a defect, you should not open the battery in any case. Bring the rechargeable battery immediately to your specialist dealer, who can then forward it to us for repair or inspection. Batteries with mechanical defects must not be shipped by post!

REPLACEMENT OF THE BATTERY

You can easily replace the battery by an identical BEN-E-BIKE battery.

CLEANING OF THE BATTERY

The battery is protected against splashing water - but it must not be sprayed with a high-pressure cleaner or a intense jet of water! Also dipping in water is not allowed!



Both on the charger and on the batteries the voltage is indicated in "Volt". Make sure that the battery and charger have the same values!



Never use batteries of other manufacturers even if those seem to have the same voltage and capacity - otherwise you will void your warranty claims.

DISPOSING THE BATTERY

! ADVICE

Never dispose a no longer usable BEN-E-BIKE battery with general waste.

Batteries in general and lithium-ion batteries in particular must be disposed separately. You can simply return the battery to a specialist dealer, who will then take over the disposal for you free of charge. AMPERUM GmbH is registered in the "BattG" registry of the German Federal Environment Agency under the number 21006877

TAKING A BEN-E-BIKE ALONG IN PUBLIC TRANSPORTATION

! ADVICE

You can transport a BEN-E-BIKE easily in the car or in buses and trains. However, taking a e-bike on board of an aircraft is in most cases prohibited because e-bike batteries* are classified as "Class 9 dangerous goods" and are therefore subject to the strictest airline safety regulations. Furthermore it is also not allowed to ship a e-bike battery by air freight, even if a suitable packaging according to the safety guidelines is used.

*BEN-E-BIKE batteries are approved according to UN38.3 for the transport in aircrafts.

ANY MORE QUESTIONS?

Visit our website www.ben-e-bike.net or send us a mail at info@ben-e-bike.com.

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