Please note

Right now, the ongoing version of eMax (3.98) is not already compatible with the newest firmware version 4.3.4 of Shimano!

We try very hard to be compatible with this version as soon as possible.

As soon as we will reach this step, the eMax program and this document will be updated accordingly.

If you are already using eMax, it is strongly recommended that you do not update your bike to the newest firmware, otherwise all your modifications made with eMax will get lost.

Your eMax – development team
User manual for eMax 3.x tuning software for increasing maximum speed for motor support for bicycles with Shimano STEPS8000 motor
**eMax 3.x in a nutshell**

- motor support without speed limitation (currently, the highest possible setting in the program is 60 km/h)
- possibility to modify the speed limitation in all 3 performance levels (Eco, Trail & Boost) individually
- real speed values will be shown on the original bike display
- real odometer values will be shown on the original bike display
- real trip recorder values will be shown on the original bike display
- possibility to adjust the circumference to exact value for speed accuracy
- possibility to configure an altered derailleur type (mechanical / electronic) correctly
- possibility to configure an altered transmission ratio correctly
- bilingual graphical user interface (German / English)
- possibility to restore the electric bike’s original configuration at any time
- possibility to modify the electric bike as often as you want to
- suitable for all STEPS8000 equipped electric bikes with or without Di2 shifting system
- no mechanical modifications on bike necessary

Before using the **eMax** software or updating the firmware of a bicycle already modified with the **eMax** software, please read the chapter "**firmware compatibility**" in the latest version of this document.
legal notice

Using this software, the legally regulated speed limitation for the motor support of a bicycle with STEPS 8000 motor can be increased.

Using this software, the official approval and homologation for road service as well as the guarantee of the bicycle can be extinguished.

A bicycle modified with this software may only be used on locked or private terrain if some special settings will be modified.

No liability shall be assumed for any damage to objects and / or persons that may occur in relation to using this software.

The user of this software is knowledgeable and self-responsible!
content of document

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<td>3.5</td>
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### eMax – program:

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<td>error correction, spelling correction</td>
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<td>Road Runner</td>
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<td>smoother transition on original speed 25km/h speed limit</td>
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<td>test and adaption to FW 4.3.1</td>
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<td>starting program with preferred language</td>
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The current related eMax program version at the time of the last update of this documentation is: 3.98

Please note that the use of eMax program versions prior to version 3.7 could lead to communication problems with the bicycle in conjunction with the operating system Windows 7. Please always use the latest version of the eMax program!
1.1 actual eMax version changes

Starting with eMax version 3.3 it is now possible to program the maximum speed for the motor support individually for the three modes "Eco", "Trail" and "Boost":

If different speed values have been selected for each of the three modes, this is signaled by a red display of the global speed value:

If the global velocity value is changed, all individual velocity values are equated.

When using the function button "set max. motorspeed [km/h]" respectively "Setze Motormaximum [km/h]" for a programming operation, the individual 3 speed values displayed below are assigned to the related modes in the bike.
2. general information about the eMax software

2.1 PCE1 interface

*Please note the following information:*

An SM-PCE1 interface is necessary to communicate the software with the STEPS8000 motor of the bicycle.

2.2 information about the current eMax version 3.x

Using this software, the legally regulated speed limitation for the motor support of a bicycle with STEPS 8000 motor can be increased.

In contrast to previous versions of the eMax software, correct values for speed, odometer (total) and trip recorder (daily) are displayed in the bike display when using eMax 3.x.

Starting with eMax 3.0 it is also possible to specify the maximum speed for the motor support directly. The maximum setting value in the eMax program is currently 60kmh, which corresponds to a realistic value in which, in addition to the human pedaling force, meaningful motor support is still possible.

The user interface is implemented in a bilingual way starting with eMax 3.0. It can be switched between English and German via button click at any time.

The eMax software can be used with bicycles with both mechanical and electronic Di2 derailleurs.

Resetting all modifications to the original value is possible at any time.

The eMax software also could be very helpful to adjust a structural configuration change from mechanical to electronic Di2 derailleur as well as changing the size of the front sprocket and / or rear cassette.

All functions of the software except for the change of the maximum speed for the motor support as well as the wheel circumference can already be tested in the cost- and license- free version of eMax.
2.3 useful information for users of the previous eMax software version 2.x

If you are already a registered user of eMax software version 2.x, you can download the current version 3.x of the eMax software free of charge at any time and use all previously known functions as well as all new functions of eMax 3.x with your already existing license key which is linked to your bike.

Der volle Funktionsumfang der eMax 3.x Software ist erst ab einem Firmwarestand des STEPS8000 Motors von 4.2.7 gegeben. Bitte aktualisieren Sie gegebenenfalls Ihr Fahrrad mit dem in Kapitel 3.1 beschriebenen „eTube“ – Programm.

The full set of functions of the eMax 3.x software is only available with firmware version 4.2.7 of the STEPS8000 motor. If necessary, update your bike with the "eTube" program like described in chapter 3.1.

Please use the new eMax 3.x version to correct your previously modified wheel circumference back to the original value (delivery state) first, so that the bike display now will show the real speed, odometer and trip recorder values. (Users of eMax 2.x had to renounce the possibility of displaying this real values so far)

However, you also have the alternative option of programming the correct measured value of the wheel circumference to ensure the most accurate speed display possible.

Partially, the wheel circumference values programmed by the bike manufacturer deviate significantly from the actual wheel circumference value in the delivery state, resulting in an inaccurate speed display.

Then, in a second step, perform the modification of the maximum speed for the motor support if required.
2.4 Important information regarding the setting of the drive characteristics

Users of the eMax software version 3.x can continue to customize the drive characteristics of the "Trail" and "Boost" modes via the PC-bound "eTube" software or the "eTube" bluetooth app on a tablet.
3. preparation

3.1 connecting the PCE1 interface to a PC

An SM-PCE1 interface is necessary to communicate between the eMax software and the STEPS8000 system of the bicycle.

Furthermore, a computer with Microsoft Windows operating system, Internet access and USB interface is required.

The following operating systems are supported by the eMax software:

- Windows 7.x
- Windows 8.x
- Windows 10.x

Plug the USB cable of the SM-PCE1 device into the PC and wait until the appropriate drivers for the interface are loaded.

Open the operating system's device manager:
Open the "COM & LPT - Ports" branch in the tree structure and make a note of the port number for the SHIMANO device. Here the COM port number corresponds to number 9:

Please note that the number of a COM port must not be assigned twice. If necessary, change the associated COM port number in the device manager.

If the Shimano device is not visible in the device manager, it may be necessary to install the complete Shimano "eTube" software. This software package could be found easily via "e-tubeproject" on the Internet and downloaded and installed free of charge from the manufacturer's website.
Please use the latest version and avoid the outdated Windows XP compatible version:

For programming the bike, it is also possible to use the more cost-effective "SM-BCR2" interface. However, the original cable plug must be modified accordingly with an additional "EW-SD50" cable. Knowledge of electronics and associated tools (clamping / soldering) are necessary. Corresponding information can be found on the Internet.
3.2  *prepare eMax software on PC*

Copy the compressed *eMax* software package to a directory on the computer where you have write permission or administrator rights:

```
PowerData (D:)  >  Temp  >  eMax-Download

<table>
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<th>Änderungsdatum</th>
<th>Typ</th>
<th>Größe</th>
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<td>eMax.zip</td>
<td>28.10.2017 18:30</td>
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Unpack the compressed program file:

```
PowerData (D:)  >  Temp  >  eMax

<table>
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<td>28.10.2017 18:29</td>
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```

Double-click the executable program file:

![eMax software interface](image)

If the program will show the graphical user interface like shown above, the preparations are completed.
3.3  connecting the PCE1 interface to the bike

Now plug one of the cables supplied with the PCE1 interface into the PCE1 device and connect the other end to a free Di2 connection on the bike. Ideally, you can use a free receptacle on the bicycle display. In general, one of the 4 existing receptacles is freely accessible after removing the protective cap. It does not matter which one of the 4 receptacles you use on the display.

The second cable that comes with the PCE1 interface does not have to be used.

Now switch on the battery power supply on the bicycle.

Tip: Place the protective cap in a known place and do not forget to put it back on the receptacle after the programming procedure in order to prevent the ingress of moisture.
4. using the eMax software

4.1 language selection

The user interface of the program is implemented bilingual. With the button "change language" or "Sprachwechsel" you can switch between English and German at any time.
4.2 tooltip

The program is equipped with a tooltip help. When moving the mouse pointer over a graphical control element, a corresponding helptext appears for a few seconds to facilitate operation:

4.3 help window

Pressing the "Help" button will display the following help window:
In the initial source state of the program, the "license key" display field is empty.
In the above example, a state of the program is shown by way of example, in which a license key for modifying the wheel circumference has already been entered previously.
Chapter 4.6 shows how to obtain a license key.
4.5  reading actual bike information

Please make sure that the bicycle is switched on and that the bicycle display is activated.

Please also make sure that a possibly mounted second battery (e.g. with Focus Jam²) is not connected to the bike. Remove either the second battery or disconnect the cable from the second battery to the bike.

Please note that the bike battery is charged to at least 50%.

Please make sure that the Shimano "eTube" program is not running and accesses the bike at the same time.

By pressing the now activated "get information" button, all relevant data of the STEPS8000 motor unit can now be read out:

The green progress bar in the lower area shows the current status of the action.

After successful read-out, the corresponding function buttons can be activated.

If the motor firmware version does not correspond to the above shown version 4.2.7 (or higher), update the motor firmware via the "eTube" program described in chapter 3.1.

Please note that the electronic power supply on your bicycle must be activated for a successful readout and programming process!
4.6 performing special functions

With the eMax software, after a mechanical modification of the bicycle, the electronical configuration can be adjusted accordingly. The following adjustments are possible:

- conversion of bicycle to electronic rear derailleur (Di2)
- conversion of the bicycle to mechanical rear derailleur
- conversion of the front sprocket to another size (34/38/44 teeth)
- rear cassette modification with altered minimum sprocket size (10/11/12 teeth)

These functions are available via the corresponding buttons in the lower right area:

After modifications have been made to the bike, in general a message to backup data appears on the bike display. Sometimes this message will be shown not until the bike is repowered. If shown, confirm this by pressing the button on the bicycle display.

A corresponding note appears in the software after each programming procedure:

Please repower the bike after each programming cycle.
4.7 modifying the maximum motor support speed and wheel circumference

To modify the maximum motor support speed and wheel circumference, a license key is required. Information about this can be obtained via the "info to obtaining license key" button:

Please send either a screen copy (screenshot) with the relevant bicycle data or / and the corresponding protocol file(s) to the specified mail address "kontakt@emax.bike".

You will receive the necessary license key to unlock the functions for modifying the maximum motor support speed and the wheel circumference very soon.

The protocol file(s) are located in the same directory as the executable program:

To speed up the process for the eMax user, the payment of the license key should to be done via [www.EBikeTuning.com/shop/shimano/emax-software.html](http://www.EBikeTuning.com/shop/shimano/emax-software.html) as soon as the serial number was read out of the connected bike.
After entering the correct (bicycle-specific) license key, all functions for modifying the maximum motor support speed and the wheel circumference are enabled:

![Software screen showing settings for motor maximum speed and wheel circumference.]

After modifications have been made to the bike, in general a message to backup data appears on the bike display. Sometimes this message will be shown not until the bike is repowered. If shown, confirm this by pressing the button on the bicycle display.

A corresponding note appears in the software after each programming procedure:

![Software note indicating successful programming and backup.]

Please repower the bike after each programming cycle.
After you have received a license key and entered it into the program, it is automatically saved for the user's convenience and displayed again in the corresponding input field the next time you use the program.

Nevertheless, please keep the received license key additionally in a safe place in order to be able to use this license key when reinstalling the program or installing the eMax program on another computer.

If you intend to modify several bicycles with the eMax software, you must always enter the respective license key belonging to the connected bicycle in the corresponding input field.

In order to simplify this process, the license key can, for example, also be transmitted and entered with the "copy and paste" function of the Windows operating system. Please make sure, however, that no invisible special characters and spaces are entered, which could lead to a situation where the license key will not be recognized as valid!
4.8 firmware compatibility

The program described here has been successfully tested with the following current firmware versions of the STEPS8000 motor:

- 4.0.3
- 4.1.0
- 4.1.2
- 4.2.7
- 4.3.1
- 4.3.2

The full functional range of the eMax 3.x software is only given from a motor firmware starting of version 4.2.7. Please upgrade your bike with the "eTube" program described in chapter 3.1.

For sure the eMax development team will try hard to support future firmware versions - anyway, an assurance that the eMax software will also work with newer STEPS8000 firmware versions, cannot be given.

Due to the fact that the developers of the eMax software are very passionate e-bikers with STEPS8000 bicycles, a new firmware version is usually tested within a few days for compatibility with the eMax software and the result is updated in the list above.

For this reason, a bicycle that has already been modified with the eMax software should only be updated with a new firmware if compatibility has been confirmed in the latest version of this document.

The latest version of this document could always be found here: www.eMax.bike/download/eMax_EN.pdf.
4.9 troubleshooting

If the eMax software does not show the graphical user interface with the corresponding program window and the controls shown on the cover sheet of this document and in some cases an error message is displayed instead, mostly the Microsoft "Visual C++ Redistributable for Visual Studio 2012" package must be installed on the Windows computer first.

This package can be downloaded free of charge from Microsoft via https://www.microsoft.com/de-de/download/details.aspx?id=30679 and should then be installed on the computer.

Please make sure that the "x86" variant of the package is used, even if you are using a 64-bit version of Windows:
If, after reading the bicycle information with the *eMax* program, non-plausible values are displayed or individual information elements remain empty, please deactivate temporarily the *virus check program* as well as the *firewall* of the computer during the communication between the PC and the bike.

It must be absolutely avoided that the COM port assigned to the PCE1 interface or the associated USB channel are simultaneously assigned to another device.

These may be partial *WLAN and / or bluetooth adapters, wireless mice* or *similar devices* that interfere with the communication between the computer and the bicycle.

If necessary, please temporarily remove or disable such adapters or devices.

In the case of communication problems, the use of *another COM port number* is often an advantage too.

The COM port assigned to the PCE1 interface can be set to a new port number in the *device manager* via *properties / port settings / advanced settings*:

![Device Manager](image)

Please unlink any existing Bluetooth connection to the Shimano STEPS System before using the *eMax* software! Simultaneous connections via *eMax* and wireless Bluetooth will result in erroneous behavior.
Examples where the transmission from the bike to the PC was disturbed and incomplete or incorrect values were displayed:

![Get Information Screen 1](image1)

If these measures do not lead to the correct reading and display of all information, the *eMax* program should be started on another computer and checked for correct functionality there.

![Get Information Screen 2](image2)

Under unfavorable circumstances a *W57* warning message could pop up after programming the maximum speed values to the bike. This is not a critical issue. It could happen that the connected bike will shut down the bikes electrical system while programming due to a timeout issue. Please power on the bike if necessary and try to reprogram the maximum speed values again.