

## **Please note**

This document relates only to Shimano DU-E80X0 (DU-E8000 and DU-E8080) based bikes. For all other Shimano STePS based drive units please also refer to [this document](#).

With the current version of [eMax](#) and motor firmware versions **4.2.7** to **4.3.2**, perfect bike tuning of a DU-E80X0 based bike is possible like described in this document.

With the current version of [eMax](#) and motor firmware versions **4.3.4** to **4.6.1**, bike tuning of a DU-E80X0 based bike is only possible via modification of the wheel circumference.

With the current version of [miniMax](#) and motor firmware versions **4.5.1** to 4.8.0, a DU-E80X0 based bike could be switched to USA mode. This modification allows a max. motor support speed of 32km/h (20mph) with correct values for speed and distance on your bike display. An additional tuning via modifying the wheel circumference is possible also.

With our new **eMaxMobileApp** (for iOS and Android) you also can modify your DU-E80X0 based bike via Bluetooth, see [here](#) and [here](#).

A bike related licence key could be used as often and long as wanted with all our programs and apps (**eMax**, **miniMax**, **eMaxMobileApp**) and is valid also for future versions of our programs and apps.

If you already own a bike with the new motor firmware **4.3.4** to **4.9.4**, there is also a possibility to downgrade your bike to version **4.3.2** and use **eMax** afterwards with full functionality if the used display type and battery type will allow this downgrade.

A detailed documentation describing the downgrade process could be found here:

[www.eMax-Tuning.com/Shimano-Firmware-Downgrade-English-Version\\_2\\_0.pdf](http://www.eMax-Tuning.com/Shimano-Firmware-Downgrade-English-Version_2_0.pdf)

Your **eMax** – development team

## Tuning possibilities when using the new firmware versions 4.3.4 - 4.6.1 and eMax 3.9R

In this case the underlying tuning functionality is done via changing the wheel circumference in the DU-E80X0 drive unit.

Using that kind of modification, you could obtain motor support up to approximately 45 km/h (EU – version).

Motor support could be increased up to approximately 60 km/h when using the US – version (this modification is possible with our *miniMax* – program)

The speed on the bike display will not be equal to the real speed then and the shown speed will be approximately half of the real value.

Also the shown distances on the bike's display will be reduced by the factor shown below.

The minimum value which could be set for the wheel circumference is **1300** mm.

With a real wheel circumference of 2300 mm (29" bike) this equals a dividing factor of approximately 1,8 which will result in a maximum speed with motor support of 45 km/h.

With a real wheel circumference of 2200 mm (27,5" bike) this equals a dividing factor of approximately 1,7 which will result in a maximum speed with motor support of 42,5 km/h.

With a real wheel circumference of 2080 mm (26" bike) this equals a dividing factor of approximately 1,6 which will result in a maximum speed with motor support of 40 km/h.

The modification of the wheel circumference could be done on bikes with mechanical as well as electronical Di2 derailleur.

Resetting the wheel circumference to the original value is possible all the times.

# Current possibilities with our tuning products and the latest Shimano DU-E80X0 motor firmware 4.5.1 – 4.9.4

## first possibility of tuning with our software:

You can use our Windows based **miniMax** program ([www.eMax-Tuning.com/miniMax.zip](http://www.eMax-Tuning.com/miniMax.zip)) or our Bluetooth based **eMaxMobileApp** to switch motor firmware version **4.5.1 – 4.8.0** to the US version which allows motor support up to 32km/h (20mph) with correct values for speed and distance on your display.

You can use our Windows based **miniMax** program ([www.eMax-Tuning.com/miniMax.zip](http://www.eMax-Tuning.com/miniMax.zip)) to switch the latest motor firmware versions **4.9.0 – 4.9.4** to the US version which allows motor support up to 32km/h (20mph) with correct values for speed and distance on your display.

For **miniMax** and **eMaxMobileApp** you can use the same licence key than with **eMax**.

## second possibility of tuning with our software:

With motor firmware version **4.5.1 – 4.8.0** you could do an additional tuning via modifying the wheel circumference down to min. 1300mm with the **miniMax** program or our Bluetooth based **eMaxMobileApp**.

With the latest motor firmware versions **4.9.0 – 4.9.4** you could do an additional tuning via modifying the wheel circumference down to min. 1300mm with the **miniMax** program.

This tuning works very good with motor support up to approx. 60km/h, but will result in non - correct values for speed and distance on your bikes display.

If you want to do this tuning you have to use the latest version of **miniMax** which could be downloaded here: [www.eMax-Tuning.com/miniMax.zip](http://www.eMax-Tuning.com/miniMax.zip).

Please also have a look in our **eMax** documentation: [www.eMax-Tuning.com/eMax\\_EN.pdf](http://www.eMax-Tuning.com/eMax_EN.pdf).

## third possibility of tuning with our software:

If you want to get full functionality (with correct values on your display and up to 60km/h motor support), you need to downgrade to motor firmware 4.3.2 first and then use the latest **eMax** software or **eMaxMobileApp**.

**Take care: Downgrade to firmware 4.3.2 is only possible in combination with the SC-E6010 or SC-E8000 display.** An SC-E6100, SC-E7000, SC-E500x or EW-EN100 display only works with motor firmware greater or equal version 4.5.1, see [here](#)! Downgrading currently is not possible with the new Shimano battery types BT-E8016/BT-E8035(-L)/BT-E8036!

We suggest to use a PCE1 or PCE02 interface from Shimano for the downgrade process. Anyhow, it is also possible to process the downgrade solely via Bluetooth, see [this document for iOS](#) and [this document for Android](#).

This is the link to the newest document for the downgrade: [http://www.emax-tuning.com/Shimano-Firmware-Downgrade-English-Version\\_2\\_0.pdf](http://www.emax-tuning.com/Shimano-Firmware-Downgrade-English-Version_2_0.pdf)

Please take care if you want to do the downgrade, also be patient and take your time. Be aware that there is no warranty and all you do is at your own risk (see documentation).


There is also plenty of valuable information and posts of satisfied users on our products **eMax**, **miniMax**, **freeMax** and **eMaxMobileApp** in the German forum [www.PedelecForum.de](http://www.PedelecForum.de).

Just type **eMax**, **miniMax** or **freeMax** to the search box and you will find.

Also, maybe please have a look on the following [document](#).

# User manual for eMax 3.x tuning software for increasing maximum speed for motor support for bicycles with Shimano DU-E80X0 drive unit

...the most advanced tuning tool for STEPS8000 (version 3.9K)



COM port:  ☐ PCE1/BCR2 ☒ PCE02

interface: ☒ bike: ☒ Eco:  Trail:  Boost:  gear mode:   
circumference [mm]:  version:   front wheel:   
serial no.:  smallest rear wheel:

Eco:  Trail:  Boost:

licence key:

## **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 / electronical) 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 DU-E80X0 based 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.



The license key for **eMax** tuning functionality is only related to one bike. If you want to modify several bikes you please order separate keys.



## **legal notice**

Using this software, the legally regulated speed limitation for the motor support of a bicycle with DU-E80X0 drive unit 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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## 1. history of document

version	date	author	comment
1.0	27.06.2017	Road Runner	initial version
1.1	28.06.2017	Road Runner	adjustments
1.2	04.07.2017	Road Runner	minor modifications
1.2	10.07.2017	Road Runner	minor modifications
1.2	24.07.2017	Road Runner	addendum regarding Microsoft Redistributable Package
1.2	27.07.2017	Road Runner	additional information about license key field
1.2	30.07.2017	Road Runner	additional information about power on sequence and secondary battery
1.2	31.07.2017	Road Runner	information about eTube and compatibility list
1.2	29.08.2017	Road Runner	update of compatibility list
3.0	06.09.2017	Road Runner	adaptation to <b>eMax</b> version 3.0
3.1	08.09.2017	Road Runner	note regarding compatibility list
3.2	11.09.2017	Road Runner	minor corrections
3.3	16.09.2017	Road Runner	adaptations to <b>eMax</b> version 3.3
3.4	20.09.2017	Road Runner	extension in chapter "troubleshooting"
3.5	25.09.2017	Road Runner	addition regarding adjustment of driving characteristics
3.5	25.09.2017	Road Runner	addition with regard to "troubleshooting"
3.6	30.09.2017	Road Runner	adaptations to <b>eMax</b> version 3.6 / program history
3.7	09.10.2017	Road Runner	addition with regard to "troubleshooting"
3.71	21.10.2017	Road Runner	"problem with Windows 7" – message added
3.72	23.10.2017	Road Runner	"problem with Windows 7" cleaned up, message removed
3.8	23.10.2017	Road Runner	first English document version, adaption to <b>eMax</b> 3.8
3.9	05.11.2017	Road Runner	adaption to <b>eMax</b> 3.9
3.93	11.11.2017	Road Runner	adaption to <b>eMax</b> 3.93
3.94	19.11.2017	Road Runner	adaption to <b>eMax</b> 3.94
3.95	22.11.2017	Road Runner	adaption to <b>eMax</b> 3.95
3.96	01.12.2017	Road Runner	adaption to <b>eMax</b> 3.96
3.97	22.12.2017	Road Runner	adaption to <b>eMax</b> 3.97
3.98	02.01.2018	Road Runner	adaption to <b>eMax</b> 3.98
3.99	09.02.2018	Road Runner	adaption to <b>eMax</b> 3.99
3.9A	30.03.2018	Road Runner	adaption to <b>eMax</b> 3.9A
3.9B	27.04.2018	Road Runner	adaption to <b>eMax</b> 3.9B
3.9C	15.06.2018	Road Runner	adaption to <b>eMax</b> 3.9C
3.9D	18.07.2018	Road Runner	adaption to <b>eMax</b> 3.9D
3.9E	07.08.2018	Road Runner	adaption to <b>eMax</b> 3.9E
3.9E	08.08.2018	Road Runner	Downgrade - link 2.0 added
3.9F	10.08.2018	Road Runner	adaption to <b>eMax</b> 3.9F
3.9G	14.09.2018	Road Runner	adaption to <b>eMax</b> 3.9G
3.9H	05.11.2018	Road Runner	adaption to <b>eMax</b> 3.9H
3.9H	11.11.2018	Road Runner	links updated
3.9K	15.11.2018	Road Runner	Integration of new PCE02 interface
3.9K	15.11.2018	Road Runner	adaption to <b>eMax</b> 3.9K
3.9K	22.11.2018	Road Runner	adjustment (EW-EN100 not supported by FW4.3.2)
3.9K	04.01.2019	Road Runner	minor version correction (3.9H -> 3.9K)
3.9M	26.02.2019	Road Runner	adaption to <b>eMax</b> 3.9M
3.9M	18.04.2019	Road Runner	new information added
---	15.10.2019	Road Runner	Update to current situation of October, 15 <sup>th</sup> 2019
3.9N	14.6.2020	Road Runner	adaption to <b>eMax</b> 3.9N
---	24.6.2020	Road Runner	additional information to avoid cabling contact problems
---	10.07.2020	Road Runner	additional information on possibilities of tuning
---	14.07.2020	Road Runner	additional information on new motor firmware 4.8.0 for DUE80X0
---	25.07.2020	Road Runner	additional information on downgrade to 4.3.2
3.9P	02.08.2020	Road Runner	adaption to <b>eMax</b> 3.9P
3.9R	16.08.2020	Road Runner	adaption to <b>eMax</b> 3.9R
4.00	06.11.2022	Road Runner	adaption to new DU-E80X0 firmware 4.9.4



## history of eMax – program:

version	date	author	comment
3.0	06.09.2017	Road Runner	new functionality "set the maximum speed", many new functions, improvements, updates
3.1	08.09.2017	Road Runner	error correction, translation correction
3.2	11.09.2017	Road Runner	error correction, spelling correction
3.3	16.09.2017	Road Runner	separate input options for the maximum speed of Eco, Trail and Boost - Mode added
3.4	20.09.2017	Road Runner	correction of version string after changing language
3.5	25.09.2017	Road Runner	readout field for wheel circumference increased to 3000mm
3.6	30.09.2017	Road Runner	translation correction / jargon adjusted
3.7	22.10.2017	Road Runner	Windows 7 issue solved
3.8	28.10.2017	Road Runner	COM port entry field set per default on first found serial port, program renamed to <b>eMax.exe</b>
3.9	05.11.2017	Road Runner	actual max. speed values for Eco, Trail & Boost added
3.9I	10.11.2017	Road Runner	code correction in readout of actual speed values
3.9J	11.11.2017	Road Runner	automatic readout of motor values after programming procedure
3.9K	11.11.2017	Road Runner	code correction regarding W57 warning after programming
3.9L	19.11.2017	Road Runner	smoother transition on original speed 25km/h speed limit
3.9M	22.11.2017	Road Runner	test and adaption to FW 4.3.1
3.9N	01.12.2017	Road Runner	new logo, minor modifications
3.9O	22.12.2017	Road Runner	test and adaption to FW 4.3.2
3.9P	02.01.2018	Road Runner	starting program with preferred language
3.9Q	09.02.2018	Road Runner	test and partial adaption to FW 4.3.4
3.9R	30.03.2018	Road Runner	test and partial adaption to FW 4.4.2
3.9S	27.04.2018	Road Runner	test and partial adaption to FW 4.4.4
3.9T	15.06.2018	Road Runner	test and partial adaption to FW 4.4.5
3.9U	18.07.2018	Road Runner	Smoother transitions on motor support limits
3.9V	07.08.2018	Road Runner	Stability improvements (optimized reaction to connection losses while programming, especially on Focus – bikes due to battery auto power off). Warning W57 handling optimized.
3.9W	10.08.2018	Road Runner	minor improvements, typo in W35, reading and showing bootloader version
3.9X	14.09.2018	Road Runner	test and partial adaption to FW 4.5.1
3.9Y	05.11.2018	Road Runner	test and partial adaption to FW 4.6.0 / <b>miniMax</b> added
3.9Z	15.11.2018	Road Runner	Integration of new PCE02 interface
3.9AA	26.02.2019	Road Runner	test and partial adaption to FW 4.6.1 / correction of wrong PCE02 message box
3.9AB	14.06.2020	Road Runner	additional indication of display type and battery type compatibility with firmware 4.7.x for modifications on derailleur type, chainring size and smallest rear sprocket size
3.9AC	02.07.2020	Road Runner	correction on indication of display type compatibility with firmware 4.7.x & 4.8x for modifications on derailleur type, chainring size and smallest rear sprocket size
3.9AD	16.07.2020	Road Runner	indication of new and unknown STePS components

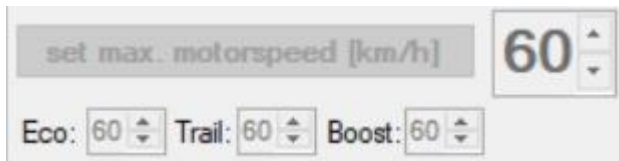
The current related **eMax** program version at the time of the last update of this documentation is: **3.9R**



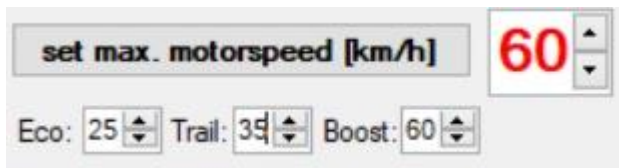
**Please note that the use of eMax program versions prior to version 3.7 could lead to communication problems with the bicycle in conjunction with the operating system Windows 7. Please always use the latest version of the eMax program!**

## 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 / PCE02 interface*

**Please note the following information:**

An **SM-PCE1** or **SM-PCE02** interface is necessary to communicate the software with the DU-E80X0 drive unit 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 DU-E80X0 drive unit 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.

The full set of functions of the **eMax** 3.x software is only available with firmware version 4.2.7 of the DU-E80X0 drive unit. 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)**

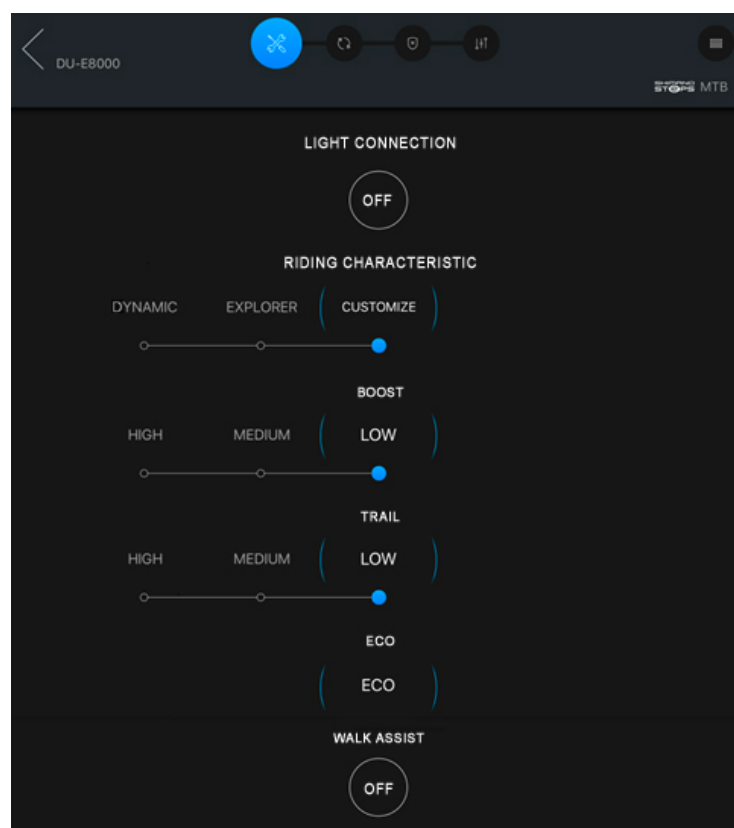
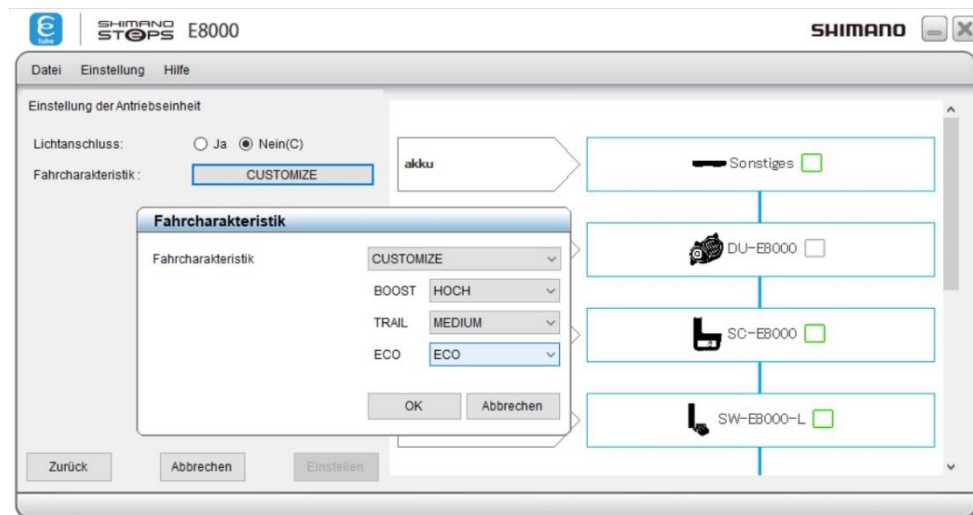
**However, you also have the alternative option of programming the correct measured value of the wheel circumference to ensure the most accurate speed display possible.**

**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 / PCE02 interface to a PC

An **SM-PCE1** or **SM-PCE02** interface is necessary to communicate between the eMax software and the DU-E80X0 drive unit of the bicycle.

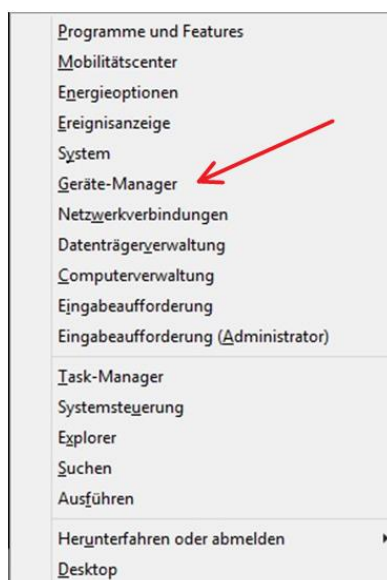
Furthermore, a computer with Microsoft Windows operating system, Internet access and USB interface is required.

The following operating systems are supported by the **eMax** software:

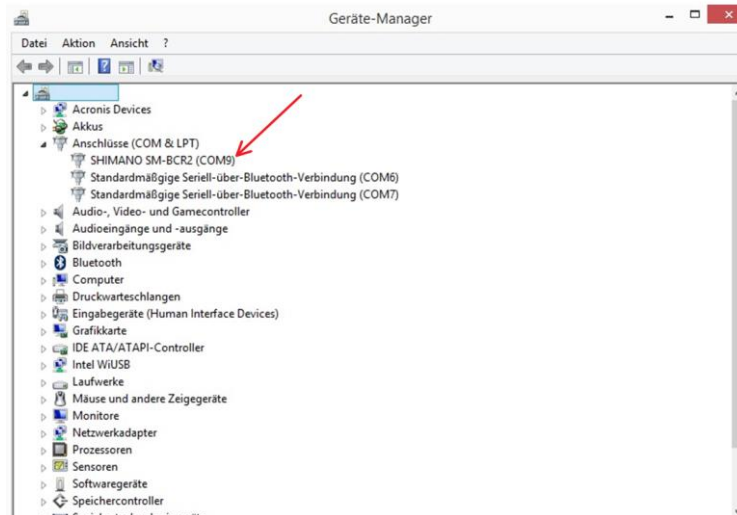
- Windows 7.x
- Windows 8.x
- Windows 10.x

Plug the USB cable of the SM-PCE1 or SM-PCE02 device into the PC and wait until the appropriate drivers for the interface are loaded.

Open the operating system's device manager:



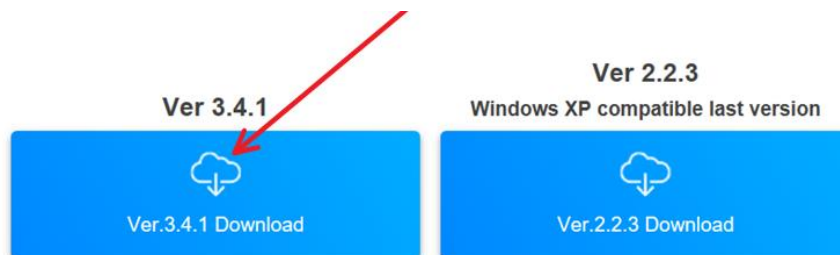
Open the "COM & LPT - Ports" branch in the tree structure and make a note of the port number for the SHIMANO device. Here the COM port number corresponds to number 9:



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 downloaded and installed free of charge from [Shimano's E-Tube project 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			
Name	Änderungsdatum	Typ	Größe
 eMax.zip	28.10.2017 18:30	ZIP-komprimierter Ordner	41 KB

Unpack the compressed program file:

PowerData (D:) > Temp > eMax			
Name	Änderungsdatum	Typ	Größe
 eMax.exe	28.10.2017 18:29	Anwendung	156 KB

Double-click the executable program file:

...the most advanced tuning tool for STEPS8000 (version 3.9K)



COM port: COM5 ☐ PCE1/BCR2 ☒ PCE02 open port help

get information clear info

interface: ☐ bike: ☐ Eco: ☐ Trail: ☐ Boost: ☐ gear mode:   
circumference [mm]:  version:  4.0.8.4 front wheel:   
serial no.:  smallest rear wheel:

set max. motorspeed [km/h] 60  
Eco: 60 Trail: 60 Boost: 60 20 mph  
set max. motorspeed to 25 km/h  
set circumference [mm] 2314

set mechanical gear mode  
set electronical gear mode  

front 34 front 38 front 44  
rear 10 rear 11 rear 12

info to obtain licence key  
licence key: 123456789012345678

change language

exit

If the program will show the graphical user interface like shown above, the preparations are completed.

### ***3.3 connecting the PCE1 / PCE02 interface to the bike***

Now plug one of the cables supplied with the PCE1 (PCE02) interface into the PCE1 (PCE02) 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 (PCE02) 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.



**Please take care that the cable from the interface is properly inserted to the receptacle of the display. The cable has to snap into the display. Ideally you'll use the TL-EW2 – tool from Shimano to insert and release the STePS based cables.**

## 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.

eMax tuning for STEPS8000 version 3.0

COM port: 1	open port	help
-------------	-----------	------

get information		clear info
interface: <input type="checkbox"/>	bike: <input type="checkbox"/>	gear mode: <input type="text"/>
circumference [mm]: <input type="text"/>	version: <input type="text"/>	front wheel: <input type="text"/>
serial no.: <input type="text"/>	smallest rear wheel: <input type="text"/>	

set max. motorspeed [km/h] 60	set mechanical gear mode
set max. motorspeed to 32 km/h	set electronical gear mode
set circumference [mm] 2200	front 34 front 38 front 44
info to obtain licence key	rear 10 rear 11 rear 12
licence key: 237000224026239074	change language

exit
------

eMax Tuning für STEPS8000 Version 3.0

COM Port: 1	Offline Port	Hilfe
-------------	--------------	-------

Zeige Informationen		Lösche Info
Interface: <input type="checkbox"/>	Fahrrad: <input type="checkbox"/>	Schaltungstyp: <input type="text"/>
Radumfang [mm]: <input type="text"/>	Version: <input type="text"/>	Vorderes Kettenrad: <input type="text"/>
Seriennummer: <input type="text"/>	Kleinstes hinteres Ritzel: <input type="text"/>	

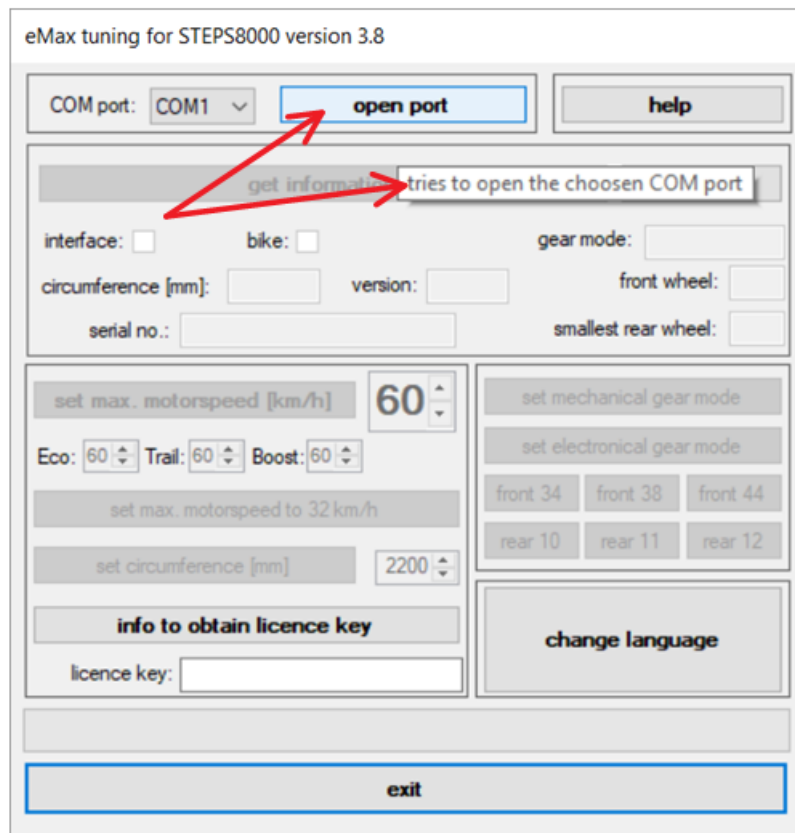
Setze Motormaximum [km/h] 60	Setze mechanische Schaltung
Setze max. Motorgeschwindigkeit auf 25 km/h	Setze elektronische Schaltung
Setze Radumfang [mm] 2200	V 34 V 38 V 44
Hilfe zum Erhalt des Lizenzschlüssels	H 10 H 11 H 12
Lizenzschlüssel: 237000224026239074	Sprachwechsel

Ende
------

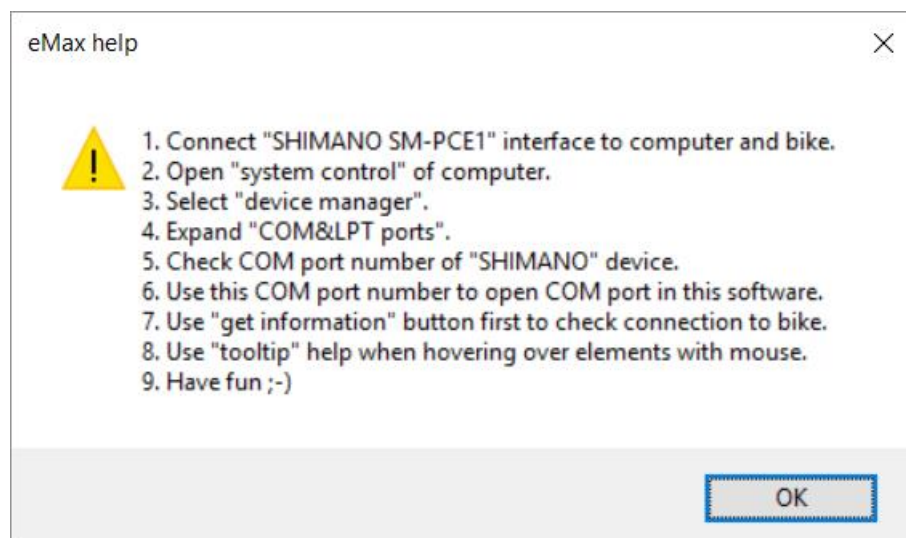
## 4.2 tooltip

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:



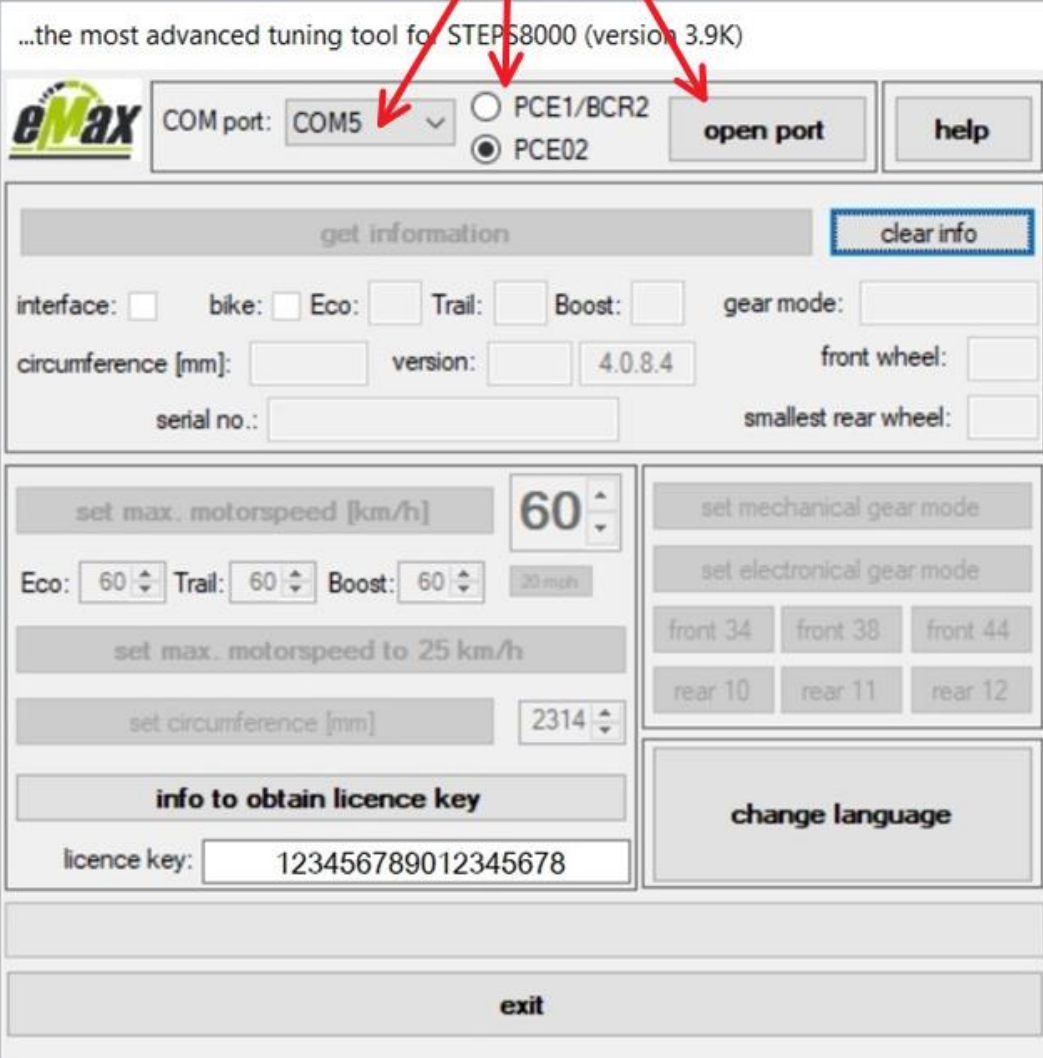
## 4.3 help window

Pressing the "Help" button will display the following help window:



#### 4.4 connecting from PC via interface to bike

Start the **eMax** software and select the COM port previously found in the device manager (chapter 3.1), select the type of communication interface you are using (PCE1/BCR2 or PCE02) and then open the connection to the interface and bicycle with the "**open port**" button:



The screenshot shows the eMax software interface. At the top, it says "...the most advanced tuning tool for STEPS8000 (version 3.9K)". Below this is the eMax logo. To the right of the logo is a "COM port:" dropdown menu set to "COM5". To the right of the dropdown are two radio buttons: "PCE1/BCR2" (unselected) and "PCE02" (selected). To the right of the radio buttons is an "open port" button. To the right of the "open port" button is a "help" button. Below these buttons is a "get information" button and a "clear info" button. Below the "get information" button are several input fields: "interface:", "bike:", "Eco:", "Trail:", "Boost:", "gear mode:", "circumference [mm]:", "version:", "4.0.8.4", "front wheel:", "serial no.:", and "smallest rear wheel:". Below these input fields are several buttons: "set max. motorspeed [km/h]" (with a value of 60), "set max. motorspeed to 25 km/h", "set circumference [mm]" (with a value of 2314), "info to obtain licence key", "set mechanical gear mode", "set electronical gear mode", "front 34", "front 38", "front 44", "rear 10", "rear 11", "rear 12", "change language", and "exit".



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 Jam<sup>2</sup>) 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 DU-E80X0 drive unit unit can now be read out:

...the most advanced tuning tool for STEPS8000 (version 3.9K)

**emax** COM port: COM5 ☐ PCE1/BCR2 ☒ PCE02 close port help

**get information** clear info

interface: ☒ bike: ☒ Eco: 60 Trail: 60 Boost: 60 gear mode: electronical

circumference [mm]: 2314 version: 4.3.2 4.0.8.4 front wheel: 38

serial no.: ## ## ## ## ## ## smallest rear wheel: 11

set max. motorspeed [km/h] 60

Eco: 60 Trail: 60 Boost: 60 20 mph

set max. motorspeed to 25 km/h

set circumference [mm] 2314

info to obtain licence key

licence key: 123456789012345678

set mechanical gear mode

set electronical gear mode

front 34 front 38 front 44

rear 10 rear 11 rear 12

change language

exit

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:

...the most advanced tuning tool for STEPS8000 (version 3.9K)

**emax** COM port: COM5 ☐ PCE1/BCR2 ☒ PCE02 close port help

**get information** clear info

interface: ☒ bike: ☒ Eco: 60 Trail: 60 Boost: 60 gear mode:   
circumference [mm]: 2314 version: 4.3.2 4.0.8.4 front wheel: 38  
serial no.: ### ## ## ## ## ## smallest rear wheel: 11

**set max. motorspeed [km/h]** 60   
Eco: 60 Trail: 60 Boost: 60   
set circumference [mm] 2314

**info to obtain licence key**  
licence key: 123456789012345678

**set mechanical gear mode**  
**set electronic gear mode**  
front 34 front 38 front 44  
rear 10 rear 11 rear 12  
**change language**

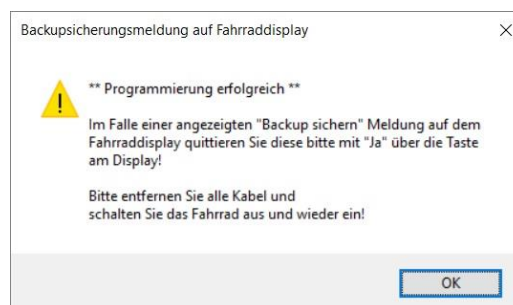
**exit**

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:

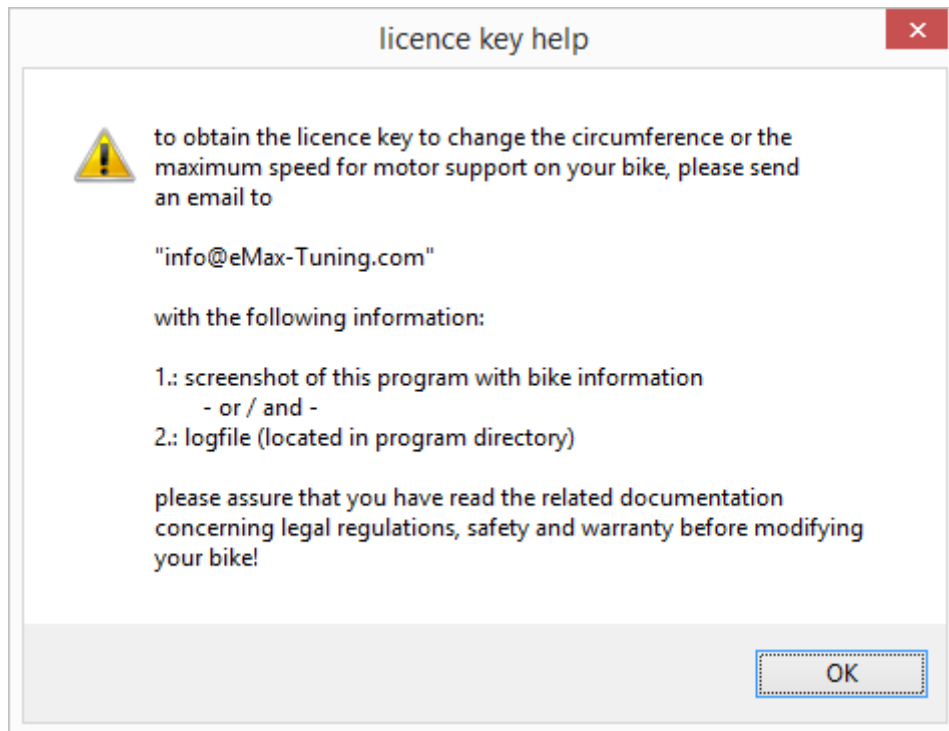


Please repower the bike after each programming cycle.



## 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:

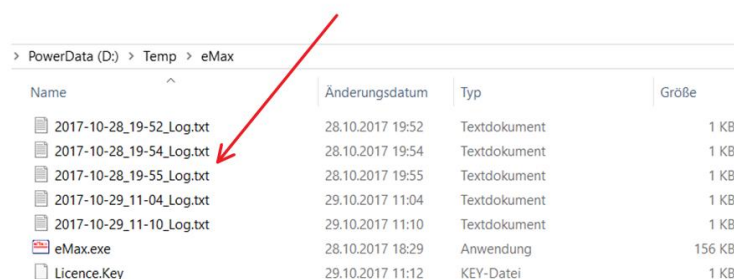


Please send either a screen copy (screenshot) with the relevant bicycle data or / and the corresponding protocol file(s) to the specified mail address "**info@eMax-Tuning.com**".

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



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



After entering the correct (bicycle-specific) license key, all functions for modifying the maximum motor support speed and the wheel circumference are enabled:

...the most advanced tuning tool for STEPS8000 (version 3.9K)

**eMax** COM port: COM5 ☐ PCE1/BCR2 ☒ PCE02 close port help

**get information** clear info

interface: ☒ bike: ☒ Eco: 60 Trail: 60 Boost: 60 gear mode: electronical

circumference [mm]: 2314 version: 4.3.2 4.0.8.4 front wheel: 38

serial no.: ### ## ## ## ## ## smallest rear wheel: 11

**set max. motorspeed [km/h]** 60

Eco: 60 Trail: 60 Boost: 60 20 mph

**set max. motorspeed to 25 km/h**

set circumference [mm] 2314

**info to obtain licence key**

licence key: 123456789012345678

set mechanical gear mode

set electronical gear mode

front 34 front 38 front 44

rear 10 rear 11 rear 12

change language

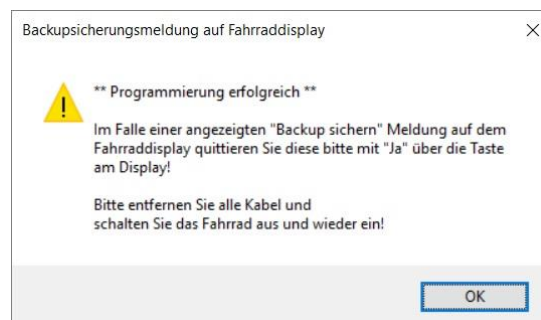
exit

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.



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 DU-E80X0 drive unit:

4.0.3  
4.1.0  
4.1.2  
**4.6.0**  
4.2.7  
4.3.1  
4.3.2  
**4.3.4**  
**4.4.2**  
**4.4.4**  
**4.4.5**  
**4.5.1**  
**4.6.0**  
**4.6.1**

Using the new firmware versions **4.3.4** to **4.6.1** on your bike, there is the possibility to do a restricted tuning via modification of the wheel circumference. This works great, but will result in approx. half of the real values for speed and distance on the bikes display.

You also can use our new program [miniMax](#) to switch to the US version which allows a max. motor support speed of 32km/h (20mph) with correct values for speed and distance on your bike display.

However, for full **eMax** functionality with **motor support up to 60km/h and correct display values on your bike display** we suggest to downgrade to firmware version **4.3.2**.

Detailed information on how to do the downgrade could be found in this document:

[www.eMax-Tuning.com/Shimano-Firmware-Downgrade-English-Version\\_2\\_0.pdf](http://www.eMax-Tuning.com/Shimano-Firmware-Downgrade-English-Version_2_0.pdf)

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 DU-E80X0 firmware versions, cannot be given.



Due to the fact that the developers of the **eMax** software are very passionate e-bikers with Shimano STePS based 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:

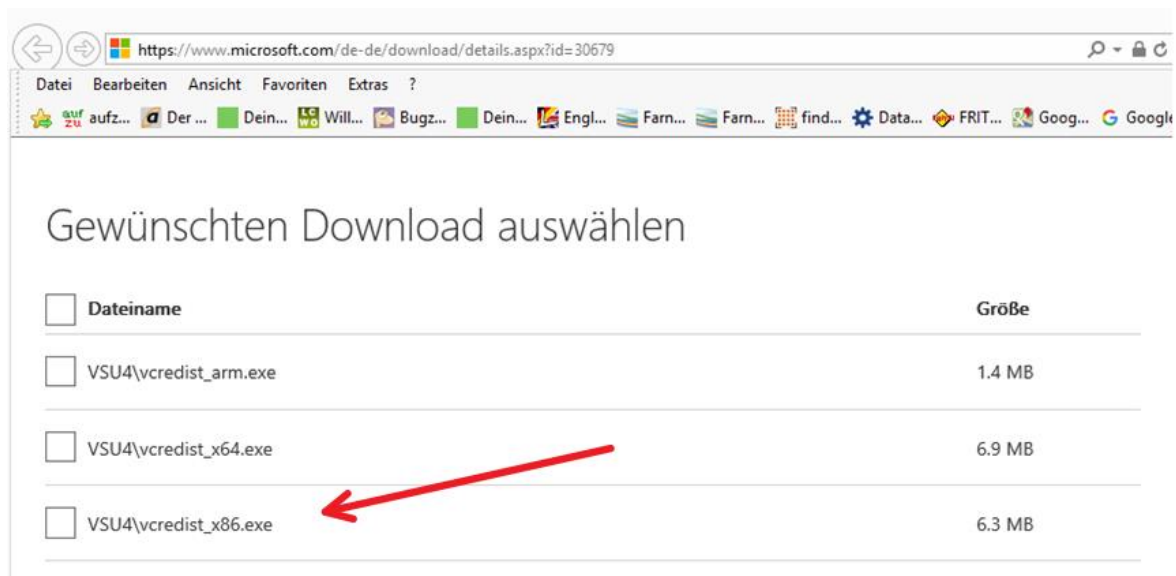
[www.eMax-Tuning.com/eMax\\_EN.pdf](http://www.eMax-Tuning.com/eMax_EN.pdf).

## 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.

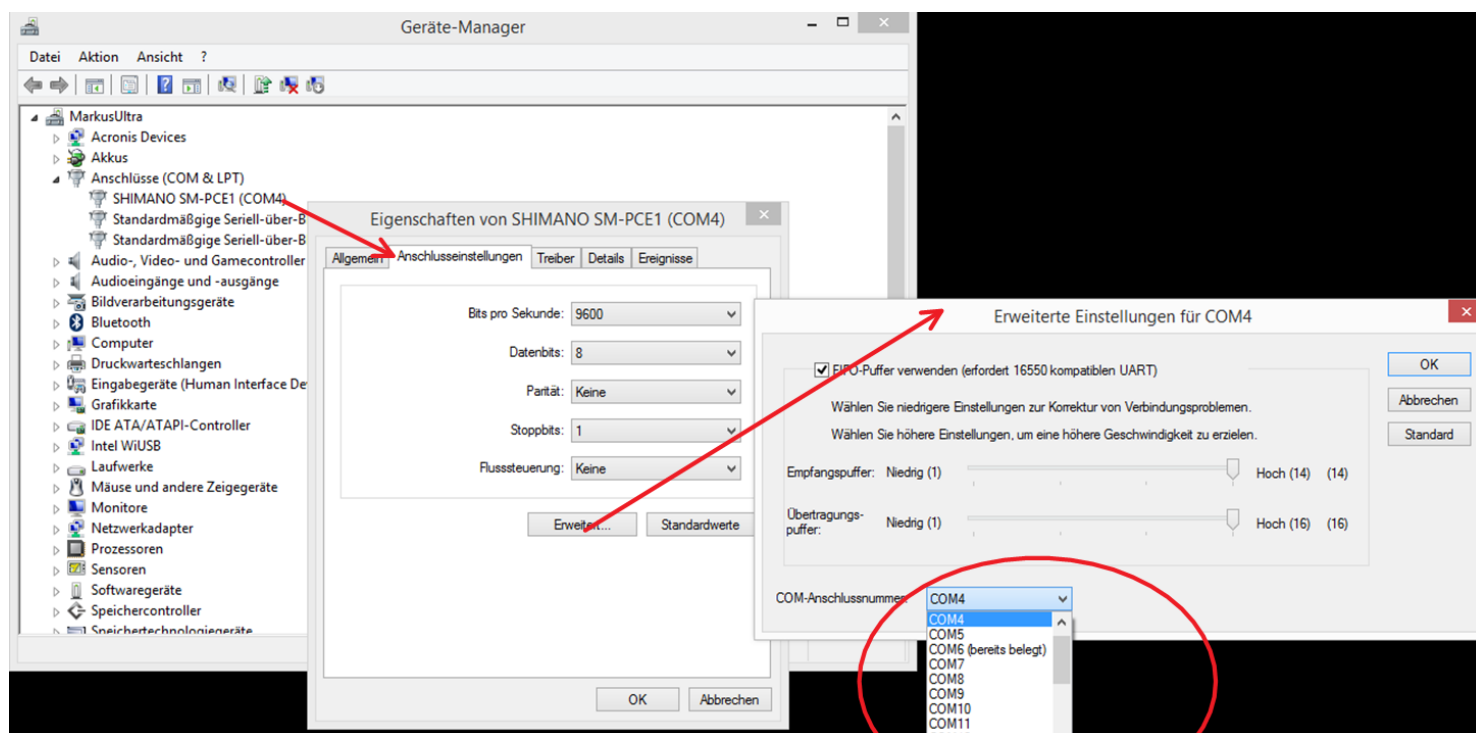
It must be absolutely avoided that the COM port assigned to the PCE1 (PCE02) interface or the associated USB channel are simultaneously assigned to another device.

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 (PCE02) interface can be set to a new port number in the **device manager** via **properties / port settings / advanced settings**:



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.

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.

Examples where the transmission from the bike to the PC was disturbed and incomplete or incorrect values were displayed:

The screenshot shows a software window titled 'get information' with a 'clear info' button. The 'interface' checkbox is checked, and the 'bike' checkbox is also checked. The 'circumference [mm]' field displays '187', and the 'version' field is empty. The 'gear mode' field is empty, and the 'front wheel' and 'smallest rear wheel' fields are also empty. The 'serial no.' field displays 'BB C5 00 01 3A BB'. Red arrows point to the 'circumference [mm]' and 'version' fields, indicating incomplete or incorrect data.

The screenshot shows the same 'get information' window. The 'interface' checkbox is checked, but the 'bike' checkbox is now unchecked. The 'circumference [mm]' field is empty, and the 'version' field displays '11.11.58'. The 'gear mode' field displays 'mechanical', and the 'front wheel' field displays '58'. The 'smallest rear wheel' field is empty. The 'serial no.' field is empty. Red arrows point to the 'version' and 'front wheel' fields, indicating incorrect data.

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.

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.



## 5. contact data



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Valuable information and user posts on **eMax** and **miniMax** could also be found via the following link:

<https://www.pedelecforum.de/forum/index.php?threads/emax-3-x-software-f%C3%BCr-steps-e8000-motoren-erfahrungen-und-austausch.51623>