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Things to know about our Windows based products
for Shimano STePS systems
eMax, miniMax and freeMax



legal note

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

A bicycle modified with our optimizing software products 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 our optimizing software products.

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

I. How to differentiate our 3 programming tools *eMax*, *miniMax* and *freeMax*?

I.1 *eMax*

...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](#) was our first programming tool development for optimizing STEPS8000 systems.

Its main purpose is speed tuning, but also doing configuration changes which aren't possible in [Shimano's E-Tube-Project software](#).

For using [eMax](#), you need an interface (PCE1, PCE02). You could also use a BCR2 interface with a modified Di2 cable.

With **eMax** you can do some quite useful configuration changes of your STePS8000 equipped bike already without licence key, like switching rear derailleur mode from mechanical to electronic (Di2) after you have done the change of all the necessary parts on your bike (new derailleur, shifter, cables). In this case normally the Shimano STePS system is blocking the changes you have made by yourself (and spent a lot of money already to Shimano) with a **W032** message (see [here](#) on page 5-27) and so this situation mostly forces you to spend some more money and time with your bikeshop and/or Shimano.

With **eMax** you can also do some modifications regarding your [front chainring size](#) as well as your rear cassette size. In general it is advised that these values match your real sizes, because these parameters are relating to the maximum motor speed and power of the **walk assist mode** and are especially important for the **intelligent walk assist mode** in combination with the electronic Di2 derailleur; see also on page 5-6 [here](#).

The above mentioned functionality of **eMax** already could be used without any licence key, so this is completely free of charge.

The probably most used functionality of our **eMax** program is to alter the maximum speed setting for motor support. Depending on your country specific legal regulations, this maximum motor support speed is rather slow and the STePS8000 motor is capable of doing a much better job with ease. For unlocking this maximum motor support speed with **eMax** you need to buy a bike coupled licence key which could be obtained via email via info@eMax-Tuning.com.

Please always keep in mind that unlocking your bike is on your own risk and you have to be conscious what you are doing and have to match the constraints which are described on [page 1 of this document](#).


In general you have 2 possibilities to do a speed tuning with **eMax**:

The **first** (and maybe best) possibility of a speed tuning with **eMax** is to use an specific original Shimano motor firmware version with version number 4.3.2 on your bike. After installing that firmware on your bike you can do a perfect tuning with **eMax** to get motor support up to 60km/h **and** also obtain correct values for speed and distance on your bike display. Right now there are no known real functional disadvantages of version 4.3.2 compared to the latest motor firmware of Shimano. The transfer of firmware 4.3.2 to your bike, the so called "downgrade" could be done in an easy way. See this [document](#) for further information.

The **second** possibility of a speed tuning with **eMax** is to use a wheel circumference modification which works pretty good and works also with the new firmware versions of Shimano, but will result in non – correct values for speed and distance on your bike display. The minimum value for the wheel circumference is 1300mm which will result in a real maximum motor speed of approx. double the display value (depending on the real wheel circumference)

1.11 minimax

miniMax for STEPS8000 (version 1.02)

 COM port: PCE1/BCR2 PCE02

interface: bike: destination: gear mode:

circumference [mm]: version:

serial no.:

[EU] Europe (25 km/h)
 [US] USA (32 km/h)
 [AS] Asia (25 km/h)
 factory reset

licence key:

[miniMax](#) is or latest programming tool for optimizing Shimano STEPS based systems and **is compatible with all Shimano STEPS based drive units.**

For using *miniMax*, you need an interface (PCE1, PCE02). You could also use a BCR2 interface with a modified Di2 cable.

With **miniMax** you can do an additional speed tuning of your motor with the latest Shimano firmware via changing your bike to the USA mode which allows a motor support speed of up to 32km/h (20mph). Doing this modification will still show correct values for speed and distance on your bike display!

Additionally with **miniMax** you also have the possibility to do the wheel circumference modification which was already described in the **eMax** section before. Take care: After doing a wheel circumference modification you will not get correct values for speed and distance any more. In combination with the USA modification you can get motor support of up to approx. 55km/h, depending on your real wheel circumference.

miniMax is especially useful for users who always want to use the latest firmware of Shimano (no matter if there is any real advantage)

Please always keep in mind that unlocking your bike is on your own risk and you have to be conscious what you are doing and have to match the constraints which are described on [page 1 of this document](#).

For doing modifications with **miniMax** you need to buy a bike coupled licence key which could be obtained via eMail from info@eMax-Tuning.com.

You can use the same licence key for **eMax** and **miniMax**.

In general an already bought licence key will be valid also for future versions of **eMax** and **miniMax**.


At this time there is no individual document for **miniMax**, but it is a good idea to have a look to the latest **eMax** documentation, which always could be found [here](#), because there are a lot of similarities between **eMax** and **miniMax**.



General information: No matter what kind of modification you are intending to do with our products – all of them could be undone and so the system could be brought back to the unmodified mode. Also due to the nature that a licence key could be used as often as wanted with the same bike, you can test all possibilities and find your best settings.

I.III *freeMax*

freeMax for STEPS8000 (version 1.06)

 COM port: COM5 PCE1/BCR2 PCE02

change language

interface: bike: version: 4.3.2

	Eco:	Trail:	Boost:
assist ratio [%]:	60	90	300
max. torque [Nm]:	30	70	70
power limit [W]:	500	500	500

default

	Eco:	Trail:	Boost:
assist ratio [%]:	60	90	300
max. torque [Nm]:	30	70	70

exit

[freeMax](#) was our second programming tool development for optimizing STEPS8000 systems.

It's main purpose is optimizing motor characteristics in a very individual way.

For using *freeMax*, you need an interface (PCE1, PCE02). You could also use a BCR2 interface with a modified Di2 cable.

With **freeMax** you can modify the motor support settings of a STePS8000 motor in a much more granular and versatile way than in Shimano's **eTube** software where you just can modify the Trail and Boost mode in only 3 steps each (See [here](#)).

Most **freeMax** fans use this tool to modify the **Eco** mode in a very economical way to save energy and so get more mileage out of a battery charge. You are not able to modify the Eco mode in Shimano's **eTube** software at all.

Additionally you also can e.g. boost the Boost mode further with **freeMax**, e.g. you can set a higher assist ratio than the maximum 300% which are possible in **eTube**.

That does not mean that you get more than 70Nm torque or 500W peak power (depending which is reaches first) out of your motor, but you have to pedal less for reaching that motor support level.

So with 300%, you need to give 23,3Nm by yourself to get the maximum torque of 70Nm out of the STePS8000 motor.

If you instead e.g. use 400%, you just need to give 17,5Nm by yourself to already get the maximum 70Nm out of the motor.

So, **freeMax** is a great tool to adjust your bike to your favorite settings and also adopt your bike in training phases very individually to your own physical and psychological level.

freeMax is a completely free of charge tool and you do not need any licence key at all.

II. How to select and use our speed tuning products *eMax* and *miniMax* to increase the max. speed for motor support of a STePS8000 motor (drive unit DU-E8000)?

Current possibilities with our tuning products and Shimano STePS8000 firmware 4.5.1 – 4.9.3 for DUE80X0 drive units:

first possibility of tuning with our software:

You can use our Windows based *miniMax* program (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) to switch the latest motor firmware versions 4.9.0 – 4.9.3 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 – 4.9.3 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. 55km/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.

Please also have a look in our *eMax* documentation: 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

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

You will find the possibilities of optimizing any Shimano STePS based bike with our tools in [this document](#).

III. How to prepare an order of a licence key for eMax / miniMax?

So, if you intend to order a licence key for **eMax / miniMax** for your bike, you need a Shimano interface (PCE1, PCE02) to get connected your Windows (version 7 to 10) based computer to your bike.

You also can use an Apple Mac - system, but only if Windows is running in native mode (e.g. via dual boot), but do not try to get Shimano's **eTube** or our programming tools installed via virtualization tools like VmWare or Parallels, because you will get frustrated sooner or later...

You can buy this Shimano interface at a lot of dealer places in the internet. Please take care that the dealer can deliver immediately, otherwise you have to wait sometimes for many days.

This interface is a valuable tool for every STePS8000 biker and we recommend this equipment for all passionate STePS8000 bikers because you can save a lot of time and money for doing some configuration changes and diagnosis at home and do not have to go to the bikeshop on every small problem.

Then download and install the tool of us which you intend to use (or all of them) via www.eMax-Tuning.com

The download and installation of these programs is completely free of charge. Also our server is absolutely free of any problems, so if there will be a warning of your antivirus program, please first try to update the database to the latest one and if your computer still does not accept the download write an eMail to info@eMax-Tuning.com with the information of your antivirus tool and we try to clarify the thing with the company of the antivirus protection software, because from time to time they put our tools to their blacklist and we have to convince them over and over again that we do not develop malware. For sure you can also temporarily disable your antivirus program, but we cannot advise you to choose this way...

Then you should connect your system like described in the [latest eMax documentation](#) to your bike (no matter which tool you are using). If the program is not starting at all or in case of other difficulties, just have a look on chapter 4.9 "troubleshooting".

In this way you should be able to read all the necessary information from your bike. For ordering we mainly need the electronic serial number of your bike, but it is best to send us all of your bikes information for giving you the best advise on how to do a tuning of your bike.

So, for transferring the electronic serial number it is best to send us a (high resolution) screenshot of the **eMax** or **miniMax** program or the latest protocol file with all the information of the bike, because this way, there will be less chances of a wrong typing of the serial number.

Take care: this electronic serial number could only be read via our programs – you will not find the electronic serial number via Shimano's eTube program, neither will this serial number printed on your bike (neither on the motor, nor on the frame).

As soon as you have sent the necessary information to info@eMax-Tuning.com you soon will receive a reply with further steps, e.g. our PayPal adress to pay for the licence key as well as best tips for the tuning. As soon as we will receive the PayPal transfer then you again will receive the final mail with your licence key document as well as the invoice. Take care that the PayPal transfer has a proper relation (e.g. the same name) for not confusing us in finding the corresponding mail with your bike data. Also take care that you check also your SPAM folder if you are waiting on our reply, because the content of our mails sometimes get caught in the SPAM algorithm.

Take care: An eMax / miniMax licence key is only valid for a related single bike. So, if you intend to modify several bikes you have to order several separate licence keys. There is no possibility to transfer a licence key from one bike to another.

A licence key can be used as often as you want to with the same bike and allows countless modification with **eMax** and **miniMax** (you can use the same licence key for both programs)

Please don't hesitate to ask via info@eMax-Tuning.com if there are further questions – we like to help and want to make the users of our tools happy.

IV. How to find further information on our optimizing products for STePS systems?

The main entrance portal for all information and programs could be found via www.eMax-Tuning.com

There is also plenty of valuable information and posts of satisfied users on our products *eMax*, *miniMax* and *freeMax* in the German forum www.PedelecForum.de.

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

Direct link regarding *eMax* / *miniMax*:

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

Direct link regarding *freeMax*:

<https://www.pedelecforum.de/forum/index.php?threads/freemax-f%C3%BCr-e8000-alle-unterst%C3%BCtzungsstufen-und-max-power-frei-einstellen.54031>

In case of any problems with modifying your bike with our tools (or also on a problematic regulary firmware update with *eTube*) this document can be a valuable help:

[http://www.emax-tuning.com/How to recover a non working STePS8000 system \(eg from broken bluetooth update\).pdf](http://www.emax-tuning.com/How%20to%20recover%20a%20non%20working%20STePS8000%20system%20(eg%20from%20broken%20bluetooth%20update).pdf)

Disclaimer:

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