

User's Manual

power2max NGeco

1 Quick Start Guide

Warning

Please read the user's manual carefully before installation and use! Improper installation can cause accidents. In case of doubt, consult a professional bicycle mechanic. Observe the indicated torque values when installing screws and bolts. (See installation instructions at www.power2max.com.)

Before going on a ride, get to know the functions and operation of your power meter. Get a checkup from a sports physician before starting your training program. Pay attention to traffic and road conditions before checking any data.

Quick start guide

Thank you for choosing a power2max NGeco power meter!

Scope of delivery

Included:

power meter power2max NGeco

Quick Start Guide including inspection certificate

Optional:

Lockring tool

power meter crankset

bottom bracket

chainring set

chainring bolts

Installation and operation:

1. Remove the red isolation strip by pulling it out of the battery compartment. (You do not need to open the battery compartment.) The LED indicator is now flashing green.
2. Please connect the power meter to your head unit (observe manufacturer's instructions).
3. Install the chainrings to the power meter (observe manufacturer's instructions and torque values!).
4. Install the power meter to the crankset (observe manufacturer's instructions and torque values!).
5. Install the crankset to the bicycle (observe manufacturer's instructions and torque values!). After installing, check the function of the front derailleur and adjust as necessary.

Finished! Now: go ride and have fun with your power2max NGeco!

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3 Declaration of conformity

DECLARATION OF CONFORMITY

Saxonar GmbH hereby declares that the power2max power meter complies with the essential requirements and further relevant provisions of the 1999/5/EC Directive. The complete declaration of conformity is available at <https://www.power2max.de>

Statement of Compliance for FCC and Industry Canada

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15C of the FCC Rules and Radio Standards Specification RSS-247, Issue 1. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

Operation is subject to the following two conditions: This device may not cause harmful interference, and this device must accept any interference received, including interference that may cause undesired operation. This product meets the applicable Industry Canada technical specifications. The term „IC:“ before the radio certification number only signifies that Industry Canada technical specifications were met.

WARNING:

Any changes or modifications not expressly approved by Saxonar GmbH could void the user's authority to operate this equipment.

Statement of RoHS Compliance

Saxonar GmbH certifies that this product and its packaging are in compliance with the directive 2002/95/EG of the European Union on the Restriction of Hazardous Substances in Electrical and Electronic Equipment (commonly known as RoHS).

Statement of Compliance for Japan

Japanese Radio Law and Japanese Telecommunications Business Law Compliance.

This device is granted pursuant to the Japanese Radio Law (電波法) and the Japanese Telecommunications Business Law (電気通信事業法). (if applicable)
This device should not be modified (otherwise the granted designation number will become invalid)

4 Warranty

4.1 Scope of warranty

Unless it is stated differently in this document, Saxonar GmbH guarantees that the product is free of manufacturing and material defects. Any claims resulting from this warranty are to be directed to the Saxonar GmbH. The original proof of purchase must be submitted. Unless it is stated differently in this document, Saxonar GmbH does not cover any other guarantees and warranties, makes no other assurances of any kind (expressed or implied) and hereby excludes any liability (including any implied guarantee for proper use, handling or suitability for a specific purpose).

4.2 Local regulations

This warranty grants you specific rights. Depending on the state (USA), province (Canada) or your home country, you may also have other rights. To the extent that this warranty is inconsistent with local regulations, it must be modified to conform with existing legislation. The respective local laws and regulations may be subject to exclusions or limitations due to this warranty. As an example, for specific states in the USA as well as other countries outside of the USA (including Canadian provinces), the following applies:

Exclusions and limitations in this warranty may not limit statutory consumer rights (e.g., United Kingdom). Any such exclusions and limitations are thus invalid.

4.3 For consumers in Australia

In order to file a warranty claim, please contact the local importer or dealer from whom you purchased this product. In the case of a valid warranty claim, Saxonar GmbH reserves the right to choose whether to repair or replace your power2max product.

You are required to cover any costs you incur when filing a warranty claim. The rights you are granted in this warranty apply in addition to other rights and legal remedies that you may be legally granted in the context of our products. Warranties apply to our products that can not be excluded by Australian consumer protection laws. In the case of substantial defects/major failure, you have a claim to a replacement or a refund of the purchase price as well as a compensation for any further reasonable foreseeable losses or damages. You also have a right to have products be repaired or replaced if their quality is flawed and the flaw is not deemed to be a substantial defects/major failure.

4.4 Limitation of liability

To the degree allowed in accordance with local regulations and with the exception of the expressly described obligations in this warranty, the Saxonar GmbH and its suppliers exclude any liability for direct, indirect, special, accidental/coincidental or consequential damages.

4.5 Warranty disclaimer

The warranty does not apply to products that are not installed and/or adjusted professionally or in accordance with Saxonar GmbH's appropriate user's manual. The power2max user's manuals can be downloaded on the internet at www.power2max.com.

This warranty does not apply to damages to the product as a result of accidents, crashes or incorrect use, not observing manufacturer's specifications or other circumstances in which the product was subject to loads or forces that the product was not intended for.

This warranty does not apply if the product was modified; this includes but is not limited to any attempt at opening or repairing any electronic and associated components including motors, controllers, batteries, wiring, switches and charging units.

Warranty claims are also void if the serial number or manufacturing code has been altered, made illegible or removed.

Normal wear and tear are excluded from warranty. Normal wear of components can take place as a result of appropriate use, not adhering to the Saxonar GmbH's maintenance recommendations and /or riding in conditions that are not recommended.

The following components are subject to "normal wear":

Dust seals

Sockets/bushings

Airtight O-rings

Mechanical seals

Moveable rubber parts

Foam rubber rings

Stripped threading/screws (aluminum, titanium, magnesium or steel)

Tools

Batteries

The warranty for the batteries and the power meter does not apply to damages resulting from power surges, a lack of maintenance or any other inappropriate use.

Damages that are caused by third-party components are excluded from this warranty.

Damages resulting from the use of parts that are not compatible or appropriate or are not authorized for use by the Saxonar GmbH for power2max power meters are excluded from this warranty.

The warranty shall not cover any damages that are caused by commercial use (rentals).

5 Introduction

Thank you for choosing a power2max NGeco power meter. Your power2max NGeco is a quality product that has been developed and manufactured with great care by the power2max Team. It offers you precise and reliable power measurement in all weather conditions while being simple and intuitive to operate. Please read the user's manual carefully before using and observe the directions for correct use of your power2max NGeco power meter.

We wish you plenty of enjoyment and success with your power2max NGeco!

5.1 Warning

Please read the user's manual before installation and operation! Improper installation can lead to accidents. In case of doubt, consult a professional bicycle mechanic. Observe the indicated torque values when installing screws and bolts. Screws and bolts that are too tight or loose can damage your power meter.

Before going on a ride, get to know the functions and operation of your power meter.

Get a checkup from a sports physician before starting your training program.

Pay attention to traffic and road conditions before checking or controlling any data from your head unit.

6 Scope of delivery

Your power2max NGeco power meter system is made up of:

A specific power2max NGeco power meter (corresponding crank version and bolt circle diameter)

Quickstart Guide with inspection certificate

Packaging

Optional:

Lockring tool to install the power2max NGeco power meter to the crankset

Crankset, bottom bracket, chainring set, chainring bolts as ordered.

IMPORTANT:

Please check that delivery contents are complete and correct.

7 Operation and installation

IMPORTANT:

It is necessary to observe indicated torque values during installation.

You can also find these values in the download area of power2max.com. Screw and bolt connections that are torqued too heavily or weakly could damage the power meter and impair the function.

In the case of bicycle frames with a BB86 or BB386EVO bottom bracket standard, the compatibility between the power meter and frame must be tested before installation.

7.1 Necessary tools

In the case of models with lockrings like FSA BB386evo, a specific lockringtool for installing the crankset to the power2max NGeco power meter is needed.

Depending on the model: medium-strength threadlock (e.g. Loctite 243).

Optional: bench vice to fixate the lockring tool during installation.

7.2 Operation

Your power2max NGeco power meter has an LED indicator light to control its function. This enables you to easily test functionality and operate the system in a quick and uncomplicated way.

1. Remove the isolation strap by pulling it out of the battery compartment. Check if the battery cap is in the correct position.

2. Now, the LED indicator light flashes green for approximately one minute.

3. Connect the power meter to your head unit (observe manufacturer's instructions). As long as the green LED indicator light blinks, the power2max NGeco power meter is emitting signals that can be received by an ANT+ or Bluetooth enabled head unit. Pair your power meter-compatible head unit with your power2max NGeco power meter. Observe the respective manufacturer's manual. Pairing your head unit is only necessary when operating the power meter for the first time. Numerous power2max NGeco power meters on different bicycles should be put into operation one after another to avoid unwanted connections between different power2max NGeco power meters and head units. You can repeat the pairing of your ANT+ or Bluetooth enabled head unit at any time. To do so, you just have to activate your power2max NGeco power meter by turning the crankarm. Your power2max NGeco power meter then signalizes its availability for pairing by blinking its green LED indicator light for one minute.

You need an ANT+-compatible head unit that supports the power-only profile (PWR). For example, suitable head units are:

CYCLEOPS: Joule 2.0 and 3.0

GARMIN: Edge 500/510/520/800/810/820/1000, Forerunner 310XT/910XT

O-SYNCE: navi2coach, Macro X and Macro High X

You can find a current list of compatible products at the ANT+ Alliance:

<http://www.thisisant.com/directory/power2max-road-rotor-3d-plus-bcd-110-or-130/>

In addition, your power2max NG power meter offers the option of using a Bluetooth low-energy compatible display instrument (BLE) that supports the Cycling Power Profile.

The data for power and cadence are calculated and transmitted. By optional payable upgrade: torque, left-right distribution and pedal smoothness are calculated and transmitted additionally.

7.3 Installation

1. First install the chainrings on the power2max NGeco power meter. In the process, take care that they are aligned correctly and solidly attached in accordance with the respective manufacturer's specifications. Guide the large chainring from above onto the power2max NGeco power meter.
2. Align the holes for the bolts.
3. After you have guided the small chainring onto the power2max NGeco power meter from the rear, tighten everything with the dedicated chainring bolts.

IMPORTANT:

Observe the torque values prescribed by the manufacturer.

Pay attention to the alignment of the chainrings and bolts. Please adhere to the manufacturer's specifications.

4. Then mount the right crankarm to the power2max NGeco power meter. Guide the right crankarm from the front through the opening in the power meter. Pay attention to the alignment and the correct fitting of the crankset to the power meter. For models with lockrings like FSA BB386EVO: place a few drops of medium-strength threadlock (e.g. Loctite 243) on the inner side of the lockring and tighten it with the help of the lockring tool.

IMPORTANT:

Please pay attention that the lockring is correctly seated on the threads.

Lock the lockring tool into a vice. This guarantees that the lockring tool is secure and stable for further installation: tighten the lockring to the prescribed torque values. You can also find these values in the download area on power2max.com or ask the crankset manufacturer.

5. Install the entire power meter unit with crankset to your bicycle. To do so, follow the steps in the installation instructions provided by the crankset manufacturer. If necessary, these can be requested from the crankset manufacturer or from a retail store. We recommend checking the correct function of the front derailleur and, if needed, re-adjusting it.

IMPORTANT:

Observe the installation instructions prescribed by the manufacturer.

6. Initial operation and installation of your power2max NGecko power meter is thus completed. You can go for a ride!

8 Using your power meter

Using your power2max NGeco power meter is as easy as the initial operation and installation is.

8.1 Before your ride

When your bicycle isn't being used, the power2max NG power meter is in standby. Once the crank is moved, the power2max NGeco power meter is activated automatically, and it begins emitting a signal. This is shown by the blinking of the green LED indicator light.

8.2 During your ride

Your power2max NGeco power meter updates all parameters in 1 second intervals; they are transmitted per ANT+ protocols or BLE.

8.3 Zero-point adjustment and thermal correction

To ensure a precise power measurement, the zero-point (the measured value when no torque is present) is automatically determined by your power2max NGeco power meter. The zero-point adjustment compensates for influences caused by temperature variations and mechanical zero-point shifts. It is possible to repeatedly set the zero point at the head unit, but it isn't necessary! This is performed by the system automatically when it is not under power. "Not being under power" means a stop in pedaling for at least two seconds during a ride. If a de-powering as described above is not possible, for example during a long mountain climb, then your power2max NGeco power meter automatically compensates for temperature. Thus your power2max NGeco guarantees a reliable power measurement.

8.4 Battery life

Battery life is approximately 400 hours. Battery life can be decreased by low temperatures and by transporting your bicycle, for example in your car.

8.5 After your ride

Your power2max NGeco power meter independently enters standby mode approximately two minutes after ending your ride. This reduces electricity consumption and increases battery life.

8.6 Battery change

To change the battery, remove the battery cap (no tool needed). Pull out the empty battery and insert a new battery. Pay attention to the correct position of the positive pole and negative pole. Close the battery cap and check if it is in the correct position.

8.7 Turning the power meter on and off

You can turn off your power2max NGeco power meter yourself by removing the battery. You can turn your power2max NGeco power meter back on by inserting the battery again.

NOTE: When transporting your bicycle, the power2max NG power meter is activated. Therefore, it is recommended to turn off the power meter for longer transports. You should generally turn it off when transporting your bike in a plane.

8.8 After a crash

The power2max NGeco power meter was developed to have a high level of reliability. Usually, crash forces are generally completely absorbed by the crankarms and the bottom bracket. Crash damage to a power2max NGeco power meter is thus almost completely ruled out.

In the interest of your own security and health, you should do the following checks:

Could the cranks have sustained any damage? The cranks could suffer from hairline fractures that you may eventually not recognize. This could, over time, result in sudden failure. Therefore, replacement is recommended. If anything is rattling around the crankset, this could indicate potential damage. Examine all mechanical connections.

9 Maintenance and care

The battery cap should be checked occasionally to see whether it is seated correctly and, if necessary, it should be replaced so that it maintains its waterproof seal.

After longer rides in the rain, please examine if water has penetrated the battery compartment. Should this be the case, allow this area to dry out while having removed the battery and with the battery cap off. You can assist in this process by using an absorbent cloth.

Do not use thinners or solvents to clean your power2max NGeco power meter. Use clear water or soapy water and a soft sponge or rag.

IMPORTANT:

Do not clean your power meter with a high-pressure power hose!

10 Disposal

The symbol of the crossed-out garbage pail on wheels, which can be found on the product, the documentation and the packaging, means that electrical and electronic products, batteries and accumulators need to be discarded separately in the European Union. Do not dispose of these products in general household garbage. Separate these products from other garbage in order not to damage people's health or the environment due to uncontrolled garbage disposal and in order to promote sustainable recycling of material resources.

11 Accessories, replacement parts

If needed, you can order the following accessories or replacement parts for power2max NGeco power meter at www.power2max.com:

battery cap

Decorative stickers in various colors (power2max green, white, red, blue, black)

Additional components, such as cranksets, etc. are also available at www.power2max.com. We will forgo an extensive list here.

12 Repair

To a certain degree, repairing a power2max NGeco power meter is possible. In case of need, please contact support@power2max.de.

13 Service calibration and control of function

The power2max NGeco power meter is calibrated at the factory and doesn't have to be newly calibrated within the warranty period. Regardless of this fact, you still have the option of ordering a calibration and function control at www.power2max.com. In this case, we will examine your power2max NGeco power meter on the outside, perform a new factory calibration and control of function. In addition to your power2max NGeco power meter, you also receive a new test and approval certificate.

IMPORTANT:

Ordering a calibration and function control can be advisable after a crash, among other things. However, it does not extend warranty coverage and only excludes a possible liability resulting from mechanical damage that has not been identified.

14 Troubleshooting

1. Green LED indicator light doesn't blink after activation

Battery is low – change battery

2. Red LED indicator light blinks after activation

Power meter error – turn off and then on. If this is unsuccessful, then contact support@power2max.de.

3. Power meter does not pair with a head unit

Battery is low – change battery

Head unit is not in pairing mode – place head unit in pairing mode

Power meter is in standby – activate power meter by rotating the crank.

Transmission is flawed – avoid sources of disturbance such as WiFi networks, microwaves, mobile phones and other active power meters.

4. Power meter shows no function

Battery is low – change battery

Operating software is in an undefined state (the power meter has “crashed”) – Turn off and then on by removing and inserting the battery. If this is unsuccessful, contact support@power2max.de.

5. Power measurements are not plausible

The zero point has changed uncontrollably – during a ride: do a zero point adjustment by depowering

6. Water intrusion into the battery compartment

battery cap has not been closed correctly – remove battery and let area dry, insert battery again and close battery cap

battery cap is damaged or worn – remove battery and let area dry, insert battery again and close battery cap

15 Technical specifications

Weight: depending on the version – details on the website

Power source: battery CR2450

Battery life: approximately 400 hours of active power measurement

Transmission standards: ANT+ Power Only Profile

Accuracy: $\pm 2\%$

Transmitted data:

Power, Cadence

Optional:

Additional features:

Active thermal correction

Automatic zero-point adjustment

Calibration is independent of chainring selection

No magnet necessary for cadence measurement

Range of measurement and display:

Power: 10 - 2999 W

Torque: 0 - 250 Nm

Cadence: 30 - 250 RPM

Decorative colors: power2max green, white, red, blue, black

LED signals:

Green blinking: power meter activated, ANT+ active for pairing with head unit

Red blinking short: power meter error

Directly after activation:

3 x green: battery charged 60 - 100%

2 x green: battery charged 40 - 60%

1 x green: battery charged 20 - 40%

1 x red short: battery charged 10 - 20% (equates to "weak battery")

1 x red long (5 seconds): battery charged 0 - 10%

16 Copyright

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17 Trademarks

power2max is a registered trademark of the power2max GmbH. All other names of products, brands or business names used in this manual can be trademarks or registered trademarks of the respective owners.

18 Changes and errors

Errors excepted. Illustrations in this user's manual are similar and can deviate from the product. The information contained in this manual is subject to change without notice. The Saxonar GmbH reserves the right to make changes and improvements in the product without previous notice.