Favero

ASSIOMA **PRO RS**

USER
MANUAL

EN

ENGLISH - USER MANUAL

Table of contents

1. Overview

To use the product, you must install the Favero Assioma app, which is available for free on the App Store and Google Play Store.

When using the product for the first time, the app will lead you through an interactive quick start guide with all the steps necessary for the installation.

Nevertheless, we invite you to read this manual carefully for the correct use of Assioma PRO RS.

2. Models

Assioma PRO RS-2 Art. 773-20-02

Left and right road pedals with power sensors on both sides.

Assioma PRO RS-1 Art. 773-20-01

Left road pedal with power sensor.
Right road pedal without power sensor.

3. Package contents

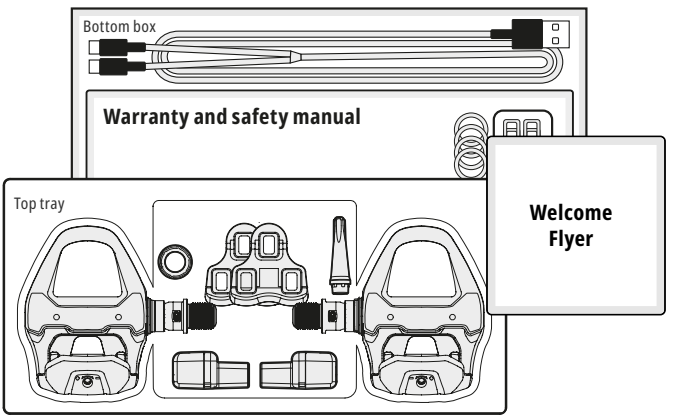


Fig. 1

Assioma PRO RS-2

- Power meter with sensors on both sides (773-20-02)
- Two-way charging cable
- 2 Magnetic connectors
- Shimano® compatible SPD-SL® cleats
- 4 Washers
- Greasing tools kit
- Warranty and safety manual
- Welcome flyer

Assioma PRO RS-1

- Power meter with sensor on the left side only (773-20-01)
- Two-way charging cable
- 1 Magnetic connector
- Shimano® compatible SPD-SL® cleats
- 4 Washers
- Greasing tools kit
- Warranty and safety manual
- Welcome flyer

4. Product description

Assioma PRO RS is a clipless pedal with a sensor to measure the force applied to the pedal during the pedal stroke.

Assioma PRO RS has been developed for road cycling.

It also measures cadence and calculates the power of each leg in real time, sending it to your bike computer or associated app.

It is equipped with a rechargeable battery designed to guarantee an operating time of at least 60 hours.

Assioma PRO RS is waterproof, mudproof and dustproof (IP67), thanks to the complete integration of electronics and rechargeable battery within the spindle.

Assioma PRO RS features both ANT+ and Bluetooth technologies to interact and transmit data to external devices.

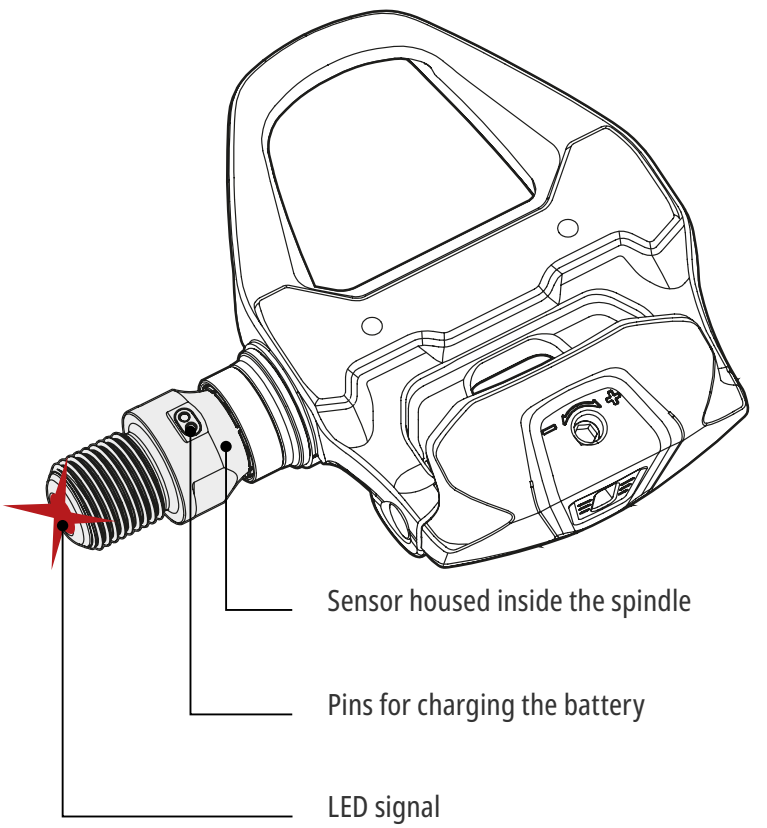


Fig. 2

5. How to distinguish the left pedal from the right one

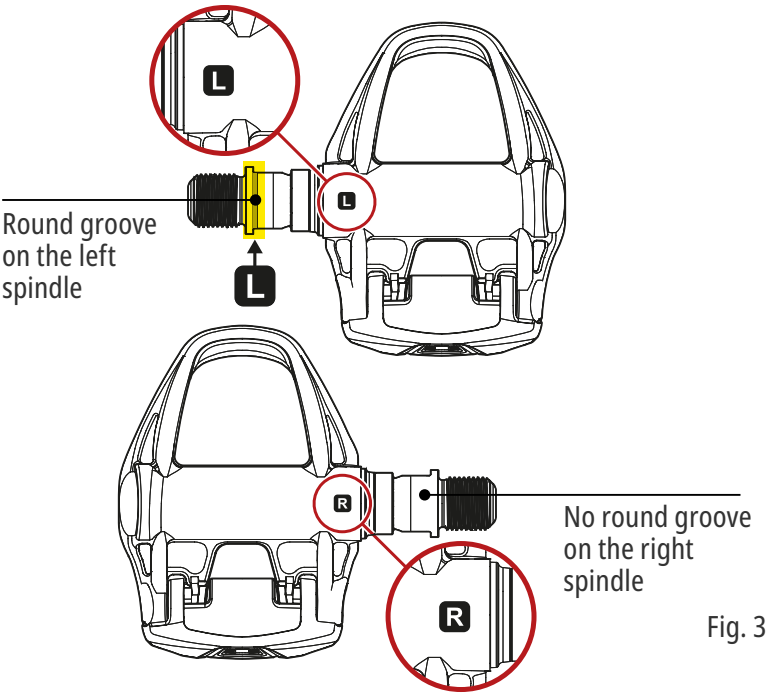


Fig. 3

Left pedal and spindle

- The left pedal is stamped “L” on one internal side of the clipless system.
- The left spindle is marked with a round groove close to the threads.

Right pedal and spindle

- The right pedal is stamped “R” on one internal side of the clipless system
- The right spindle, unlike the left one, has no round groove close to the threads.

6. Warnings

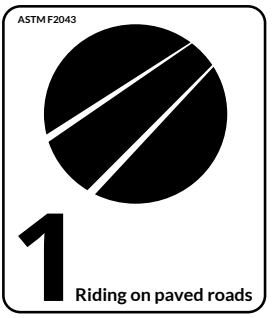
⚠ Carefully read the following user manual and the warranty and safety manual provided within the box before installing the product.

The incorrect installation and improper use of the product can cause accidents.

If you have any doubts about your ability to install the product, we recommend that you ask for the assistance of a specialized mechanic.

Before start riding, make sure that the force necessary to release your shoe from the pedal is suited to your needs.

7. Bike category



Assioma PRO RS has been designed for paths up to category 1 (standard ASTM F2043).

It meets the safety standard DIN EN ISO 4210.

8. Installation

Assioma PRO RS uses needle roller bearings, which offer a much higher load carrying capacity compared to the standard ball bearings.

Some cyclists who are more sensitive to the feedback from their bikes may notice a slight play on the pedals, but this is considered absolutely normal with this type of bearing.

1. Thread greasing

Apply a thin layer of lithium grease to the spindle thread to ease any potential future removals.

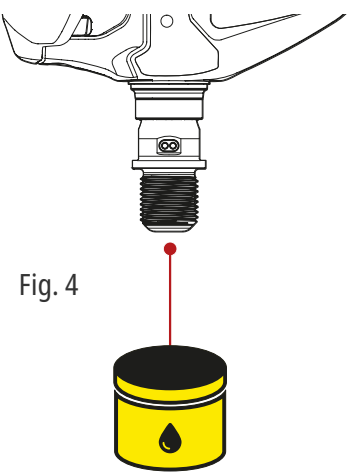


Fig. 4

2. Check the distance between pedal and bike chain and pedal and frame

For the correct installation of the product, it's important to have enough space between spindle cap and bike chain and spindle cap and frame.

Proceed as follows:

1. Screw the spindle into the crank-arm MANUALLY until it has been completely inserted.
   See Fig. 5

   Left pedal (L) counter-clockwise
   Right pedal (R) clockwise

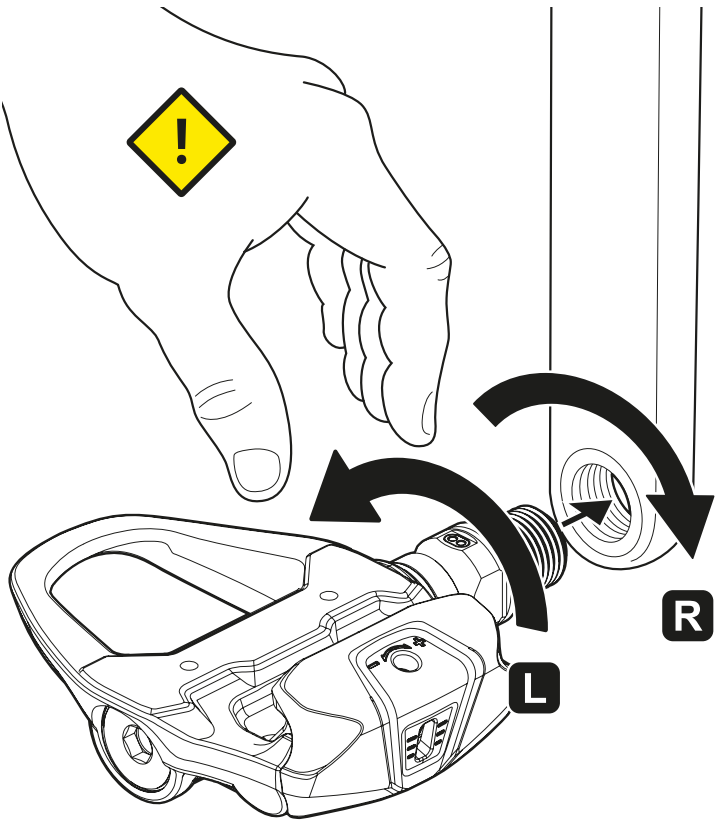
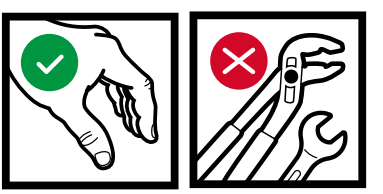


Fig. 5

Carry out this operation MANUALLY, without any tools.



2. Make sure to shift the chain to the largest, outermost chainring and the smallest cassette sprocket.
See Fig. 6

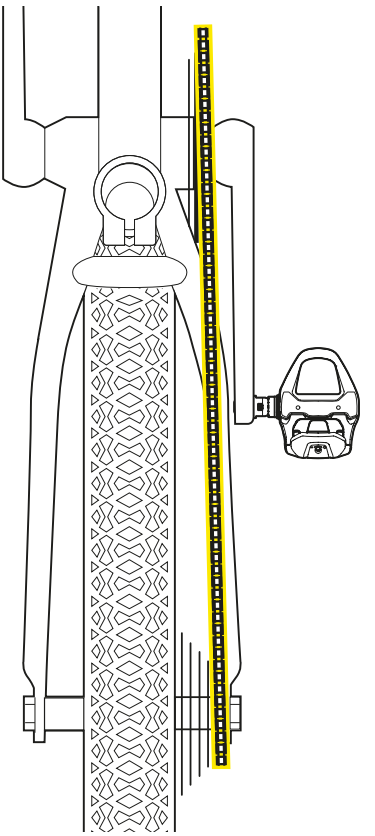


Fig. 6

3. Check the distances to avoid any kind of interference.
   - When stationary, rotate the crank-arm manually one complete rotation.
   - The spindle cap must be at a distance bigger than 4mm both from the bike chain and the frame.
   - If you use crank-arm protectors, make sure they don't interfere with the bike chain or rear triangle.
     See Fig. 7.

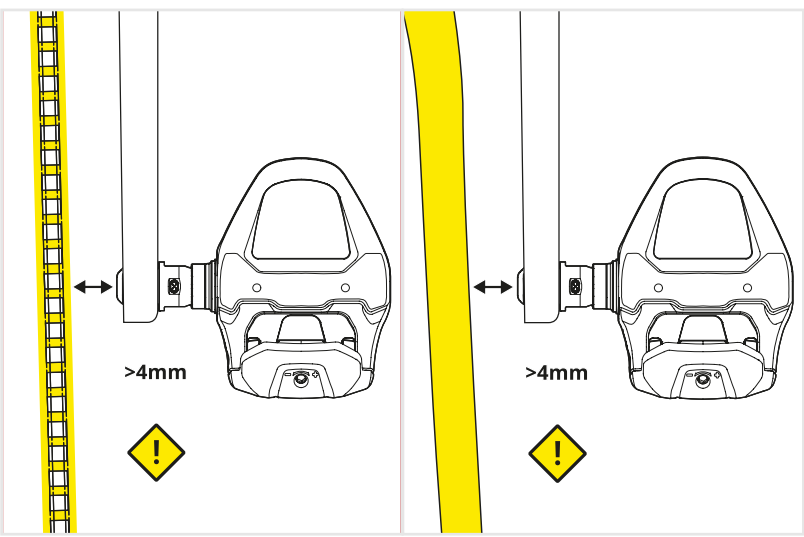


Fig. 7

If the distance is inferior to 4mm, use one or two washers (A1, A2).

Use only the washers provided by Favero Electronics Srl.

See Fig. 8.

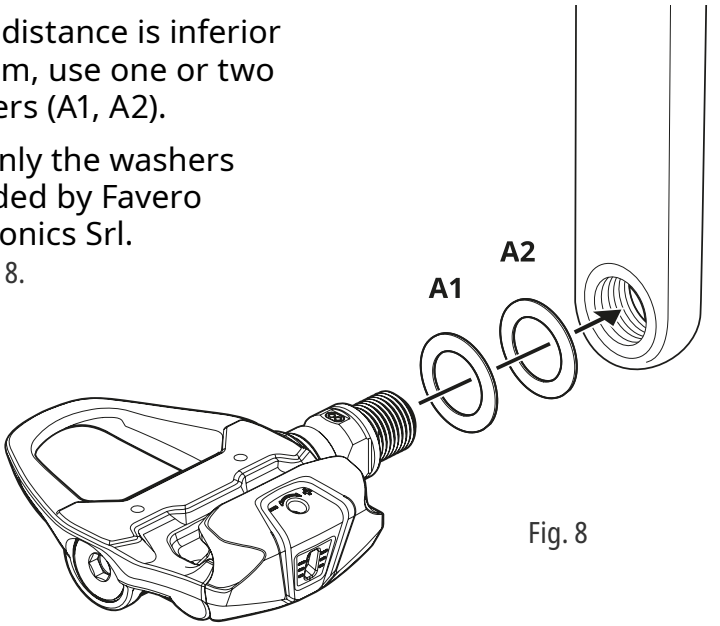


Fig. 8

For optimal radio communication, the plastic end of the spindle (threaded side), which houses the LED and antenna, must extend at least 1 mm beyond the crank-arm thread, making crank-arms thicker than 15 mm in the threaded area unsuitable.

This requirement cannot be met in crank-arms without a pass-through hole, as obstruction would hinder signal transmission.

See Fig. 9.

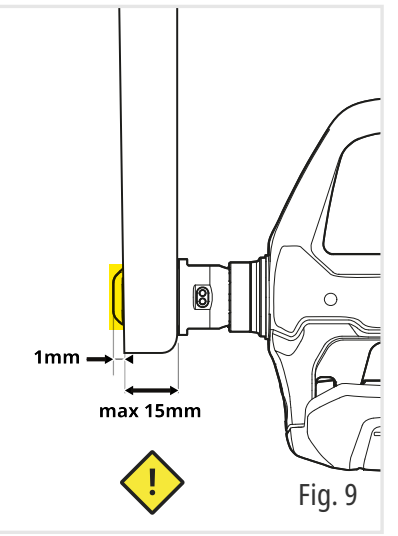


Fig. 9

Assioma PRO RS must not be used with pedal extenders, crank shorteners, or any accessories that alter the crank-arm setup, as they may cause damage. However, crank-arm protectors are an exception and can be used without issue.

3. Tightening on the crank-arm

Finish tightening with a torque wrench by applying a force of 30-40Nm.

Turn counter-clockwise for the left pedal (L), clockwise for the right (R).

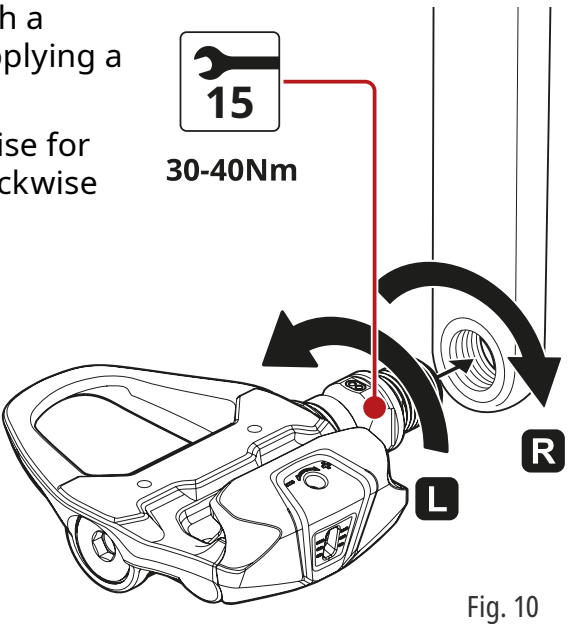
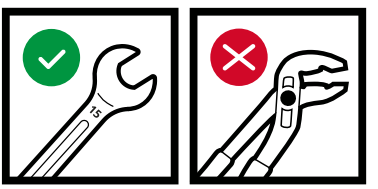


Fig. 10

Use a 15mm open-end wrench.

Don’t use spanners or adjustable wrenches.



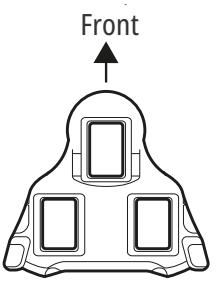
Make sure the pedal is correctly tightened before use.

Read carefully the information in the warranty and security manual provided within the box.

9. Installation of the cleats

Use only the supplied cleats (compatible SPD-SL®) or the original Shimano® cleats SM-SH10, SM-SH11 or SM-SH12.

Align the cleats properly according to your needs and tighten the mounting bolts with a torque of 5-6Nm.



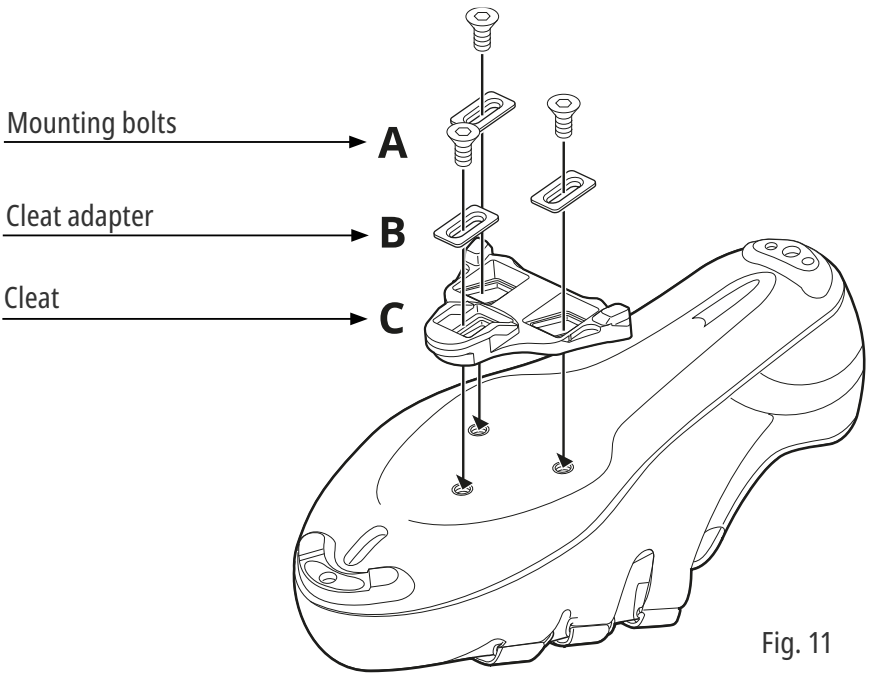


Fig. 11

⚠ The use of other types of cleats might not be suitable, cause potential damage to the product and void the warranty.

To fix the cleats, use the mounting bolts provided with them.

Tightening torque: **5–6 Nm**

⚠ **Regularly check the status of the cleats**

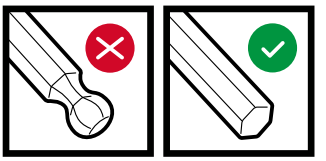
- Check that the holes where the mounting bolts are screwed in are not damaged/worn out.
- Check that the cleats are well tightened to the shoes.

Carefully read the information contained in the warranty and safety manual.

10. Release force adjustment

Adjust the tension of the spring with a 3mm hex key.

Don’t use ball-end hex keys.

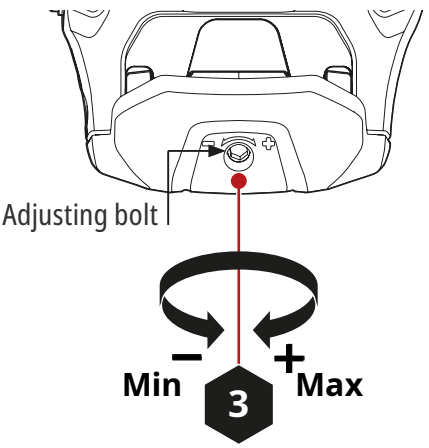


It is possible to check the regulation level by the position of the adjusting bolt or counting the number of clicks.

Before you start pedaling, try to unclip the shoes several times to ensure that the release force of the pedal springs is suited to your needs.

If the release tension is too loose, the pedal may release unexpectedly.

On the contrary, if it’s too tight, shoe release may be impossible when needed.
Both conditions may cause accidents and potential damage to things and/or people.



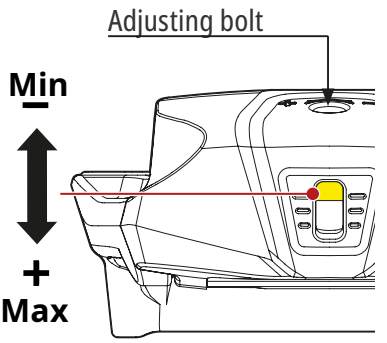


Fig. 12

The correct direction to clip-out is by twisting outward.

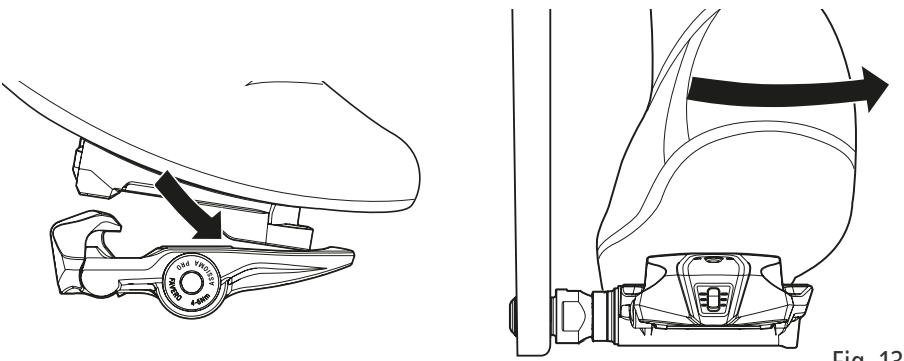


Fig. 13

11. Switching on

Assioma PRO RS automatically turns on by manually rotating the sensor or when you start pedaling, and automatically turns off after 5 minutes of inactivity to safeguard the battery duration.

When using Assioma PRO RS for the first time, you must turn it on by plugging it into a charger plugged into a socket.
The same procedure is necessary to exit the “travel mode” through the Favero Assioma app.

If you don’t see the LEDs blinking, charge the battery as indicated in Ch. 17.

Always clean the golden contacts present both on the sensors and the magnetic connectors with a damp cloth before charging to ensure the correct functioning of the product.

To learn more about the LEDs’ behaviour, see Ch. 21.

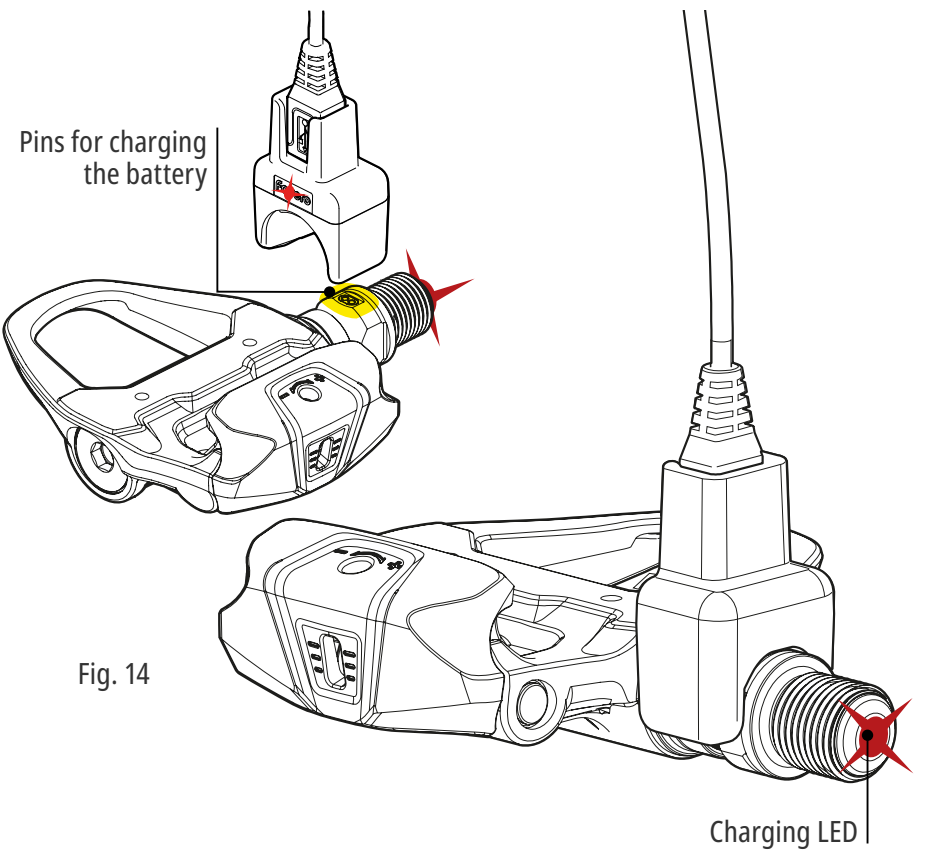


Fig. 14

12. Activation

Assioma PRO RS must be activated to start transmitting power data.

The activation happens through the Favero Assioma app, which is available for free on the App Store and Google Play Store.

The activation also determines the start of the warranty period, and the access to any future software updates.

ⓘ Click or scan the QR code of the store most suited to your operating system to download the app.

Open the Favero Assioma app and follow the procedure to search for your pedals, connect them to your device and activate them.

If Assioma PRO RS doesn't appear on the search window, make sure it's not already connected via Bluetooth to another device (e.g. bike computer).

13. Pairing to your training device

Pairing is the procedure that allows you to match Assioma PRO RS to your training device to be able to register and read power data.

This occurs with either ANT+ or Bluetooth communication technologies.

This makes Assioma PRO RS compatible with any bike computers/smart watches featuring ANT+ with PWR Bike Power Profile and/or Bluetooth with CPP profile.
Assioma PRO RS can also be paired via Bluetooth to tablets and smartphones to use third-party training apps.

To see all the certified ANT+ products please browse:

http://www.thisisant.com/directory

(Select "Bike Computers" in "Categories")

With both ANT+ and Bluetooth, you only have to pair the left sensor to your training device.

Don't worry: If you use Assioma PRO RS-2 (with sensor on both sides), the left pedal will also automatically transmit the data collected by the right pedal it is paired with.

1. Pairing Assioma PRO RS via ANT+

The data visible via the ANT+ communication channel are: Power, Cadence, L/R Balance (the latter is only available with Assioma PRO RS-2), Torque Effectiveness (TE), Pedal Smoothness (PS) and the Cycling Dynamics such as PCO, Power Phase (PP) and Riding Position (RP).

Although the pairing procedure varies depending on the device you are using, at the end of the chapter we outline some generic guidelines.
For additional information, please refer to the manual of your bike computer's manufacturer.

We remind you that each Assioma has been assigned a 5-digit identification number (ANT+ ID) visible on the external side of the package and on the Favero Assioma app. This number is useful to identify the left sensor among all the devices available for the pairing via ANT+ with your bike computer.

ⓘ We recommend you install the latest firmware version available from the bike computer manufacturer.

2. Pairing Assioma PRO RS via Bluetooth (BLE)

The data visible via Bluetooth are: power, cadence and L/R balance (the latter is only available with Assioma PRO RS-2).

On the Favero Assioma app you can find some advanced training metrics, which are available in the "LIVE" section. These are: Torque Effectiveness (TE), Pedal Smoothness (PS) and the Cycling Dynamics, such as PCO and Power Phase (PP).

Assioma PRO RS allows for up to 3 Bluetooth devices to be connected at the same time.

Should you encounter difficulties when pairing via Bluetooth, we suggest you unpair the pedals from any surrounding Bluetooth devices and try again.

Although the procedure varies depending on the device you are using, we outline hereafter some generic guidelines.

3. Guidelines for pairing via ANT+ and Bluetooth

Your training device must be turned on.

1. Manually rotate the crank-arms to activate the pedals.
2. Open the “Settings” section on your training device.
3. Select “Sensors” and “Add new sensor”.
4. A list of the available devices will appear.
5. Select the left sensor to proceed with the pairing.

14. Crank-arm length

The crank-arm length has an influence on power calculation.

Assioma PRO RS must, therefore, know its value: an incorrect value may result in incorrect power data. Please, refer to the manual of your bike computer’s manufacturer to understand how to correctly set the crank-arm length value.

Should it not be possible to set the crank-arm length on your bike comuter/third-party app, input it directly on the Favero Assioma app.

⚠ Do not set the crank-arm length on the Favero Assioma app but on your bike computer if the latter offers this feature, otherwise the value inserted on the Favero Assioma app would be overwritten.

15. Manual and automatic calibration

Each Assioma PRO RS sensor is factory calibrated to ensure its guaranteed precision under any operating conditions, including ambient temperature variations, for which automatic compensation from -10°C to +55°C is active.

Assioma PRO RS features the automatic calibration functionality (or zero-offset), a sophisticated algorithm taking into account different aspects over time and performing several periodic calibrations of the product.

⚠ Place the bike upright (not tilted), with no load applied on the pedals.
Automatic calibration is independent of the crank position.

Manual calibration is only required at first installation and any time you swap Assioma PRO RS between bikes.

It is, however, possible to continue performing manual calibration on the Favero Assioma app or compatible bike computers following the procedure described below.

By doing so, the values already registered on the last

automatic calibration will be overwritten.

To perform it:

1. Turn on Assioma PRO RS.
2. Release the shoes from the pedals and make sure that no load is applied.
3. Place the bike upright (not tilted) keeping it as still as possible. Otherwise, it will not be possible to complete the calibration.
4. Place the crank-arms in vertical position.
5. Open the Favero Assioma app or bike computer and proceed with the calibration.
   If Assioma PRO RS is not found, make sure it's not connected via Bluetooth to another device.

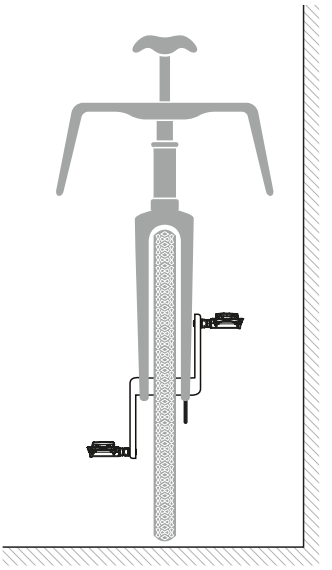


Fig. 15

The calibration procedure varies depending on whether it is performed on the Favero Assioma app or on your bike computer.

1. On the Favero Assioma app

1. Select "Settings".
2. Select "Manual calibration".
3. Select "Calibrate".
4. Make sure that manual calibration is successful.
5. Repeat the operation if an error occurs.

2. On your bike computer (generic procedure which varies according to the model)

1. Access the power sensors menu.
2. Select "Calibrate" or "Zero-offset".
3. Make sure that manual calibration is successful; normally, a confirmation message or a 0 (zero) appears on the display.
4. Repeat the operation if an error occurs.

ⓘ Due to potential limitations of bike computers, sometimes manual calibration is slowed down or hindered if there are other ANT+ sensors enabled on the bike computer but not turned on (e.g. heart rate monitor, cadence meter) as the bike computer keeps on looking for them but can't find them.

In any case, these must be turned on or temporary disabled on the bike computer.

16. First use

At first installation, Assioma PRO RS will not send any power data to the bike computer until it has completed an internal self-calibration.

Assioma PRO RS selfcalibrates after a few dozen pedal strokes. To speed up the procedure, it is advisable to pedal seated, at a uniform pace and on a level road.

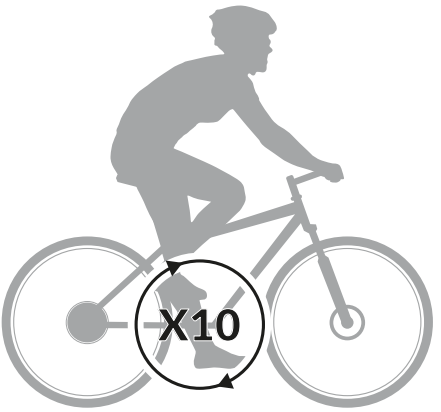


Fig. 16

Self-calibration can be considered as complete once Assioma PRO RS starts sending power data to your device.

17. Charging the battery

1. Warning for the charge

Assioma PRO RS has an internal rechargeable lithium battery which allows for at least 60 hours of operation.

Always clean the golden contacts present both on the sensors and the magnetic connectors with a damp cloth before charging to ensure the correct functioning of the product.

To learn more about the LED's behaviour, see Ch. 21.

If you don't use the product for a long period, we suggest charging it at least every 3 months to safeguard the performance of the battery.
When the battery of a pedal runs low, the bike computer will display a warning. The remaining battery duration after such a warning is about 8 hours.

If the charging connector LED turns off, ensure the charger is powered, the cables are securely connected, and the magnetic connector is correctly aligned with the charging pins.

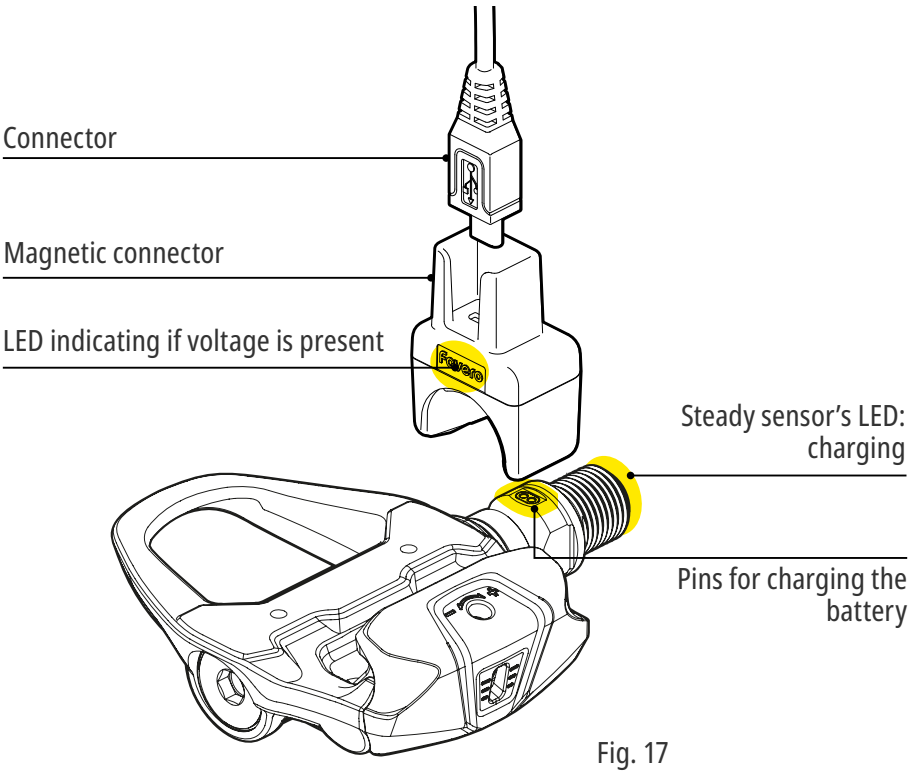


Fig. 17

2. Charging procedure

To charge the batteries, you just need a standard USB-A charger or a common powerbank.

Some powerbanks might not charge the battery completely if they have a minimum charging voltage superior than what Assioma PRO RS needs.

To charge Assioma PRO RS, insert the magnetic connectors into a battery charger plugged into a socket and clip the magnetic ends on to the pedal as shown in the figure.

⚠ Always clean the golden contacts present both on the sensors and the magnetic connectors with a damp cloth before charging to ensure the correct functioning of the product.

To learn more about the LED's behaviour, see Ch. 21.

The sensors' LEDs turn on and stay on during the whole charging process. Once the charge is completed, the LEDs start blinking every 0.5 sec.

The charging time, if the battery is drained, is around 4 hours.

⚠ Charge in an environment with a recommended temperature between +10°C and +45°C. Outside this range, charging may be blocked to preserve the functionality of the batteries.

18. From single to dual-sided

Assioma PRO RS-1 measures the power output of the left leg only and doubles it to offer total power data reading. Please note that you can always purchase the right power meter pedal at any time to change from a single to a double-sided power meter, **Assioma PRO RS-2**.
To convert Assioma PRO RS-1 into RS-2, once you've bought the product mentioned above, you need to open the Favero Assioma app and select Settings - From single to dual-sided.

19. Removing the pedals

To remove the pedals, use a 15 mm open-end wrench:

- Unscrew the LEFT pedal **CLOCKWISE** (facing the pedals).
- Unscrew the RIGHT pedal **COUNTER-CLOCKWISE** (facing the pedals).

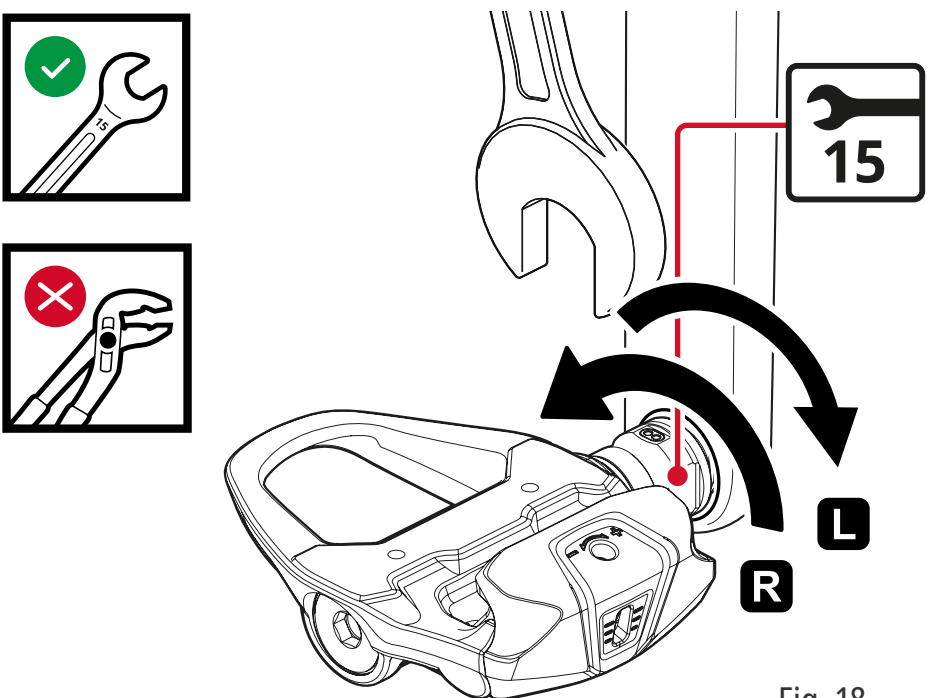
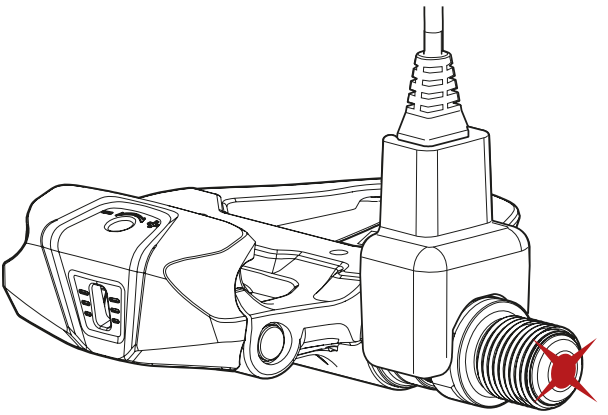


Fig. 18

20. Reinstalling the pedals (swap them between bikes)

1. Install the pedals as shown in Ch. 8.
2. Correctly set the crank-arm length as in Ch. 14.
3. Perform manual calibration as in Ch. 15.
4. Start pedaling. As thoroughly explained in Ch. 16, the product needs an initial self-calibration that will occur over a few dozen pedal strokes.
   To speed it up, we suggest you pedal seated, at a uniform pace and on a level road.

21. Sensor LED behaviour



Fast and continuous blinking for 3 seconds	Assioma PRO RS is being turned on
Short blinking every 3 seconds	Assioma PRO RS is turned on
Steady	The battery is charging
Short blinking every 0.5 seconds	The battery charge is completed
Two flashes every second	Search for the associated sensor
The LED automatically switches off while pedaling	While pedaling, the LED is off. When you stop pedaling, the LED starts blinking again.

22. Servicing

Carefully read the following user manual and the warranty and safety manual provided in the box before using the product.

1. General check

⚠ To ensure the correct functioning of the product and avoid possible accidents caused by the loosening of the spindle, it is recommended to check periodically or, better yet, before every ride, that the spindle is tightened with the required tightening torque of 30-40Nm.

Before every ride, make sure that both the end cap and screw cap are tightened with a tightening torque of 4-6Nm and 5-7Nm respectively. See Ch. 23.

2. Cleaning

Clean Assioma PRO RS with a damp cloth.

Do not use aggressive chemicals such as: gasoline, gas oil and petrol by-products in general, alcohol, industrial or all-purpose degreasers, etc.

⚠ Do not use high pressure jets.

3. Greasing

Lubricate the spindle occasionally with a coat of grease to enhance performance over time.

Make sure you use the greasing tools kit provided within the box.

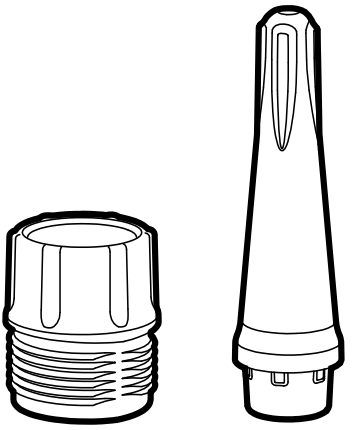


Fig. 19

All the information necessary for carrying out this process is available in the specific guide at the following link:

https://youtu.be/GnQVhhrnvGs?t=110

23. Spare parts

For more information on spare parts, visit the shop on the website https://cycling.favero.com.

Exploded view of the components

PEDAL BODY:

Left kit PRO RS
Art. 773-20-20
1x left pedal body
1x end cap
1x screw cap (black)
1x oil seal
1x axial washer
1x greasing kit tool

Right kit PRO RS
Art. 773-20-21
1x right pedal body
1x end cap
1x screw cap (red)
1x oil seal
1x axial washer
1x greasing kit tool

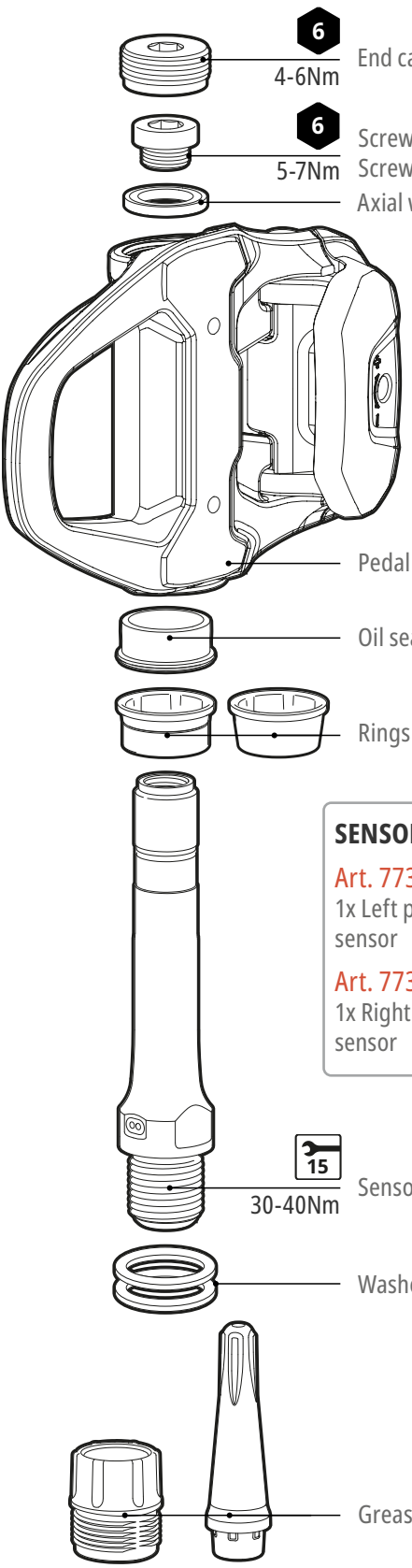
Red rings Set:
Art. 773-00-38

Black rings Set:
Art. 773-00-39

Repair kit:
Art. 773-00-50
2x end cap
1x screw cap (red)
1x screw cap (black)
2x axial washers
2x oil seals
4x washers
1x greasing tools kit
1x rings set

Washers set:
Art. 773-00-36
4x washers

Greasing tools kit:
Art. 773-00-37
Plastic tools for the greasing process



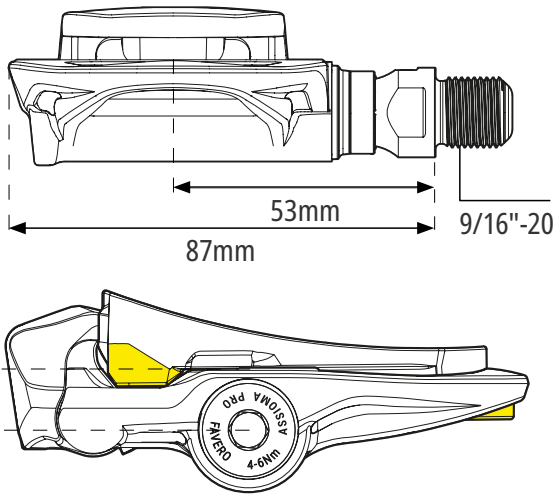
SENSOR:

Art. 773-00-20
1x Left pedal PRO sensor

Art. 773-00-21
1x Right pedal PRO sensor

24. Total Stack height

Pedal Stack height: 10.5 mm



25. Technical features

Product code:	Assioma PRO RS-2 *(art. 773-20-02), power sensors on both sides* Assioma PRO RS-1 *(art. 773-20-01), power sensor on the left side only*
Transmitted data:	ANT+, Bluetooth (bike PC) & Favero Assioma app • Power (watt) • Cadence (rpm) • L/R Balance (only with Assioma PRO RS-2) ANT+ & Favero Assioma app • Platform Center Offset (PCO) • Power Phase (PP) • Torque Effectiveness (TE) • Pedal Smoothness (PS) • Rider Position (RP) - no Favero Assioma app
Radio protocol:	ANT+ PWR (PO) profile Bluetooth v4.2 Frequency 2402-2480 MHz RF power max 1.4dBm EIRP
Bluetooth connections:	Up to 3 devices simultaneously
Power:	0 - 3000 W
Cadence:	10 - 250 rpm
Power measurement accuracy:	± 1%
Gyroscope:	Integrated to account for instantaneous angular velocity variations

Cadence sensor:	Internal, integrated
Internal battery:	lithium, rechargeable, 4,2Vdc nominal voltage, at least 60 operating hours
Total pedal weight with sensor:	123.5 g
Pedal weight without sensor:	122.5 g
Pedal stack height:	10.5 mm
Pedal axle material:	AISI 630 stainless steel
Bearings:	2x needle rollers *(Dynamic load > 400kg each needle roller)* 1x axial washer in technopolymer
Axle threads:	9/16"-20 TPI
Operating temperature:	-10 / +55 °C
Suggested battery charge temperature:	+10 / +45 °C
Protection degree:	IP67 (Indoor/Outdoor) use
Compatible cleats:	• Compatible cleats provided (art. 773-20-64) • Original Shimano® cleats SM-SH10, SM-SH11 or SM-SH12
Max cyclist weight:	120 Kg [1]
Warranty:	2 years
Power meter:	Produced based on the F-PM2 sensor
Internal battery charger input:	5Vdc max 110mA

[1] This product has been designed for weights no higher than those clearly specified. A person exceeding the weight limit herein specified will use this product at his/her own risk.

This product is ANT+ certified and complies with the ANT+ specifications:

www.thisisant.com/directory

26. Favero Electronics Srl

Assioma PRO RS is entirely designed, produced and assembled by Favero Electronics Srl in Italy, according to rigorous quality and safety standards and using highly qualified personnel.

For more information, visit the page:

https://cycling.favero.com/company

Favero Electronics Srl

Via R. Lombardi 64 - 31030 Arcade TV | Italy Tax registration number: IT 04703130262 | REA: TV371603 | BattG: DE21721389 Share Capital: € 100.000,00 i.v.

27. Warranty

All information relating to the product warranty is contained in the Warranty and Safety manual provided inside the product box or downloadable from the website cycling.favero.com.

28. Copyright

The Manufacturer reserves the right to improve or modify the product and this manual without obligation to notify private individuals or organizations. Assioma® is a registered trademark of Favero Electronics Srl.

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