

# VESPERA<sub>VE50</sub>

Instruction Manual v1.3 EN 2023-02



## Table of Contents

I. Package contents .....	2
II. Product presentation .....	2
III. Warnings .....	2
IV. Installation .....	3
Attaching Vespera to the tripod and positioning the tripod .....	3
Power supply .....	4
Mains charging .....	4
V. Operation .....	4
Getting started .....	4
Connecting to Vespera .....	4
Control from the mobile app .....	5
How to turn Vespera off .....	5
VI. Accessories (optional) .....	5
Hygrometer sensor AC024 .....	5
Light pollution filter AC023 .....	6
Dual Band filter AC022 .....	7
Solar filter AC021 .....	8
VII. Care and maintenance .....	9
VIII. Transport and storage .....	9
IX. Technical characteristics .....	10
X. Warranty .....	11
XI. Regulatory compliance .....	11
EU declaration of conformity .....	11
FCC Statment .....	11
XII. Disposal and recycling .....	12

## **I. Package contents**

The original packaging contains the following elements:

- 1 Vespera telescope
- 1 tripod - delivered in kit to be assembled
- 1 bubble level plate
- 1 AC adapter
- 1 USB-C magnetic charging cable

We recommend that you keep the packaging pack of your telescope so that you can use it to store the telescope when not in use or to send it back in case of a product return.

## **II. Product presentation**

Vespera is a new generation telescope, a perfect hybrid between a connected telescope and a camera. Intelligent and fully automated, Vespera is a revolution in the world of astronomy. With a completely redesigned observing experience, replacing the eyepiece with a mobile application, it becomes easy for everyone to access the wonders of the Universe.

Compact, intuitive, smart and connected, it allows you to discover and share the wonders of the night sky with your family or friends.

Thanks to its compact dimensions and optimized weight, the telescope is easy to carry in a hiking bag or carry-on suitcase. Its ergonomics offers the user an unforgettable experience whatever the observations conditions.

Once installed on its tripod and levelled, Vespera unfolds and locates itself automatically. It is equipped with a built-in battery and can also be recharged by an AC adapter (included) if needed.

Once the telescope is connected, you can browse the mobile app via your smartphone or tablet and choose an object from the suggestions. Vespera can be controlled remotely thanks to the developed application and in a few minutes, the telescope is ready to photograph.

Thanks to its integrated microcomputer, Vespera pushes the limits of on-board intelligence by automatically managing the star alignment, pointing and tracking of stars, image processing and application updates. The telescope also uses live stacking technology to provide optimal image quality.

With an Internet connection, you will be able to share your photos instantly on social networks, but also access the community of Vespera users around the world, with whom you can interact and progress.

## **III. Warnings**

Before use, please read this instruction manual carefully and observe all warnings and precautions.

If you give or lend the device to another person, be sure to pass on the operating instructions.

The contents of this manual are subject to change. For the latest instructions on how to use this product, please refer to the manual available online at <https://vaonis.com/documents>

If you have any questions about your product, please visit <https://www.vaonis.com> or send us an e-mail at [support@vaonis.com](mailto:support@vaonis.com)

- Vespera should never be pointed at the sun without a proper filter, placed on the lens.
- When using a mains charger, you are responsible for its proper use. The use of the charger must be in accordance with the manufacturer's recommendations. Vaonis can not be held responsible for any damage caused by a mains charger.
- This instrument is composed of fragile optical, mechanical and electronic components. Protect the instrument as much as possible from shocks and vibrations in order to improve the life of your Vespera..
- Do not open the instrument. Do not attempt to disassemble, modify or repair the instrument as this will void the warranty. Contact support by email at [support@vaonis.com](mailto:support@vaonis.com)
- Use only the accessories supplied by Vaonis and respect the conditions of use recommended by Vaonis.
- Unplug the device in case of thunderstorms or when it is not used for a long period of time..
- Use the product at temperatures between 0°C and 40°C.
- Store the product in a clean and dry place (preferably at room temperature and humidity less than 65°C).
- Do not immerse the product in water.
- Vespera is not a toy.
- The product is not intended for use by children under the age of 14.
- This product may be used by children of at least 14 years of age and by persons with reduced physical, sensory or mental capabilities or lack of experience, if they are properly supervised or instructed in the safe use of the product and are aware of the risks involved.
- Children must not play with the device.
- Cleaning and maintenance by the user must not be carried out by unsupervised children.
- Do not use chemical solvents (e.g. alcohol, thinner) or other flammable cleaning fluids to clean the product or its accessories.
- Do not dispose of the product in a fire, nor with household products as there is a risk of explosion of the battery; refer to chapter XI of this document.

#### **IV. Installation**

##### **Attaching Vespera to the tripod and positioning the tripod**

1. Mount the tripod: screw the 3 legs to the tripod base.

2. Lay Vespera flat and screw the base of the tripod to the black attachment of Vespera.
3. Place the level plate on the product at the level of Vespera's power socket.
4. Look for the flattest, hardest ground possible. Avoid stony or loose ground to ensure maximum stability.
5. Level the tripod by using the bubble level.
6. To make sure the tripod is stable, apply vertical pressure to the top of the tripod.  
If the tripod remains stationary, you can proceed to the next step. If not, move the tripod and try again on more stable ground.

### **Power supply**

Vespera is equipped with an integrated battery with a 4 hour battery life.

### **Mains charging**

Plug the product into the power outlet.

- ⇒ If the product is turned off: the button flashes green every 10 seconds when the product is charging
- ⇒ If the product is on: the button changes from blue to green every 10 seconds when the product is charging



It is recommended to perform this charging step indoors using only the AC adapter supplied reference Type - AC30IC. The wall plug must be easily accessible

## **V. Operation**

### **Getting started**



The button is tactile, no need to apply strong pressure

Charge the product to 100% before first use

To start the instrument, press the button on the side of the instrument.

The button flashes blue at first and then becomes static when Vespera is ready to be used (WiFi network available).

### **Note:**

- If the button does not light up, put it on charge for a few minutes.
- If the button flashes red once, the battery level is low.
- If the button flashes red twice, the battery level is very low; put the product to charge
- If the button flashes red 4 times, the product has a problem; contact the support service

### **Connecting to Vespera**

Once turned on, Vespera creates its own Wi-Fi network.

To connect to it, first download the "Singularity" application from the App Store or Google Play.

Refer to the FAQ on our website to know the software versions supported by the application

Activate your Wi-Fi connection and connect to "Vespera-XXXXX"

### **Control from the mobile app**

In the mobile application, let the tutorial guide you.

The 5 main steps are:

- Initialization
- Object choice
- Pointing and settings
- Observation
- Saving and sharing pictures

### **How to turn off Vespera**

Shut down the product either via the app or by pressing the button on the side of the instrument.  
The light on the button will go out, indicating that Vespera is shut down.

## **VI. Accessoires (options)**

### **Vespera AC024 Hygrometer Sensor**



Hygrometer sensor detection can take 30 seconds to 1 minute

1. Manually open the arm of the product.
2. Remove the cover located on the front end of the optical arm by pressing the button provided for that purpose.
3. Position the AC024 hygrometer sensor in its casing and press it down firmly.
4. Screw the sensor in using the screwdriver provided.
5. Put back the cover
6. Manually close the arm.
7. Turn the product on.
8. Connect to Vespera via the Singularity application.
9. In the application, go to the "space center" page.

10. Go to "Instrument".

11. If properly assembled

- ⇒ the temperature and humidity icons will appear under the product image
- ⇒ initialize the product and launch an observation

12. If improperly assembled or defective

- ⇒ the temperature and humidity icons will not appear under the product image, "no sensor detected" will appear instead
- ⇒ Disassemble then reassemble the sensor. If the problem persists, contact support

### **Vespera AC023 Light Pollution Filter**



Only handle the filter by its edge to avoid dirtying or damaging it

1. Turn the product on.

2. Connect to Vespera via the Singularity application.

3. In the application, go to the "space center" page.

4. Go to "Instrument".

5. Press "open arm". The arm will open 180°.

6. Remove the cover on the front end of the optical arm by pressing the button provided for that purpose.

7. Position the AC023 light pollution filter.

8. If properly assembled

- ⇒ a filter icon and the name of the filter, "CLS", will appear under the product image
- ⇒ initialize the product and launch an observation

9. If improperly assembled or defective

- ⇒ the filter icon will not appear under the product image, "no filter detected" will appear instead
- ⇒ remove the filter and reassemble. If the problem persists, contact support

Note:

- There is a visual marker with the letter C located on the inside of the filter for easy identification when the filter is not mounted on the product.
- For optimal storage, we recommend storing the filter in its original plastic box.
- Cleaning and maintenance must be performed with caution. Only use wipes specifically intended for optical lenses.

### **Vespera AC022 Dual-Band Filter**



Only handle the filter by its edge to avoid dirtying or damaging it

1. Turn the product on.
2. Connect to Vespera via the Singularity application.
3. In the application, go to the "space center" page.
4. Go to "Instrument".
5. Press "open arm". The arm will open 180°.
6. Remove the cover on the front end of the optical arm by pressing the button provided for that purpose.
7. Position the AC022 dual-band filter.
8. If properly assembled
  - ⇒ a filter icon and the name of the filter, "DUAL", will appear under the product image
  - ⇒ initialize the product and launch an observation
9. If improperly assembled or defective
  - ⇒ the filter icon will not appear under the product image, "no filter detected" will appear instead
  - ⇒ remove the filter and reassemble. If the problem persists, contact support

Note:

- There is a visual marker with the letter D located on the inside of the filter for easy identification when the filter is not mounted on the product.
- For optimal storage, we recommend storing the filter in its original plastic box.
- Cleaning and maintenance must be performed with caution. Only use wipes specifically intended for optical lenses.



### Vespera AC021 Solar Filter



1. never point Vespera at the sun without a Vaonis solar filter installed
2. ensure the product is level
3. only handle the filter by its edge to avoid dirtying or damaging it
4. an "alert" window may appear:
  - ⇒ if the instrument detects too much light, the observation will be interrupted for safety reasons. Ensure the filter is properly positioned
  - ⇒ if the instrument detects the solar filter was removed, the observation will be interrupted for safety reasons. Ensure the filter is properly positioned

#### Installing the filter

1. Turn the product on.
2. Connect to Vespera via the Singularity application.
3. In the application, go to the "space center" page.
4. Click on Solar Pointing
  - ⇒ for the first observation, read the information, then press Close
5. Select your observatory.
6. Press the start button: the arm will open to 90°.
7. Remove the cover located on the front end of the optical arm by pressing the button provided for that purpose.
8. Position the AC021 solar filter.
9. If properly assembled
  - ⇒ a filter icon and the name of the filter, "SOLAR", will appear under the product image
  - ⇒ press the "confirm filter installation" button
  - ⇒ follow application instructions to properly position the instrument
  - ⇒ press the "confirm arm orientation" button for Vespera to start the solar observation
10. If improperly assembled or defective
  - ⇒ the "confirm filter installation" button will not be available (dimmed)
  - ⇒ the filter icon will not appear under the product image, "no filter detected" will appear instead

⇒ remove the filter and reassemble. If the problem persists, contact support

#### Stopping the observation

1. Remove the AC021 solar filter by pressing the button provided for that purpose.
2. Put the cover back on and press the "close arm" button.

#### Note:

- There is a visual marker with the letter S located on the inside of the filter for easy identification when the filter is not mounted on the product.
- For optimal storage, we recommend storing the filter in its original plastic box.
- Cleaning and maintenance must be performed with caution. Only use wipes specifically intended for optical lenses.

### **VII. Care and maintenance**

Vespera is an optical instrument, it is therefore fragile and requires a lot of precaution during its use.

The front lens must not come into contact with fingers, cloths, eyeglass cloths, liquids etc.. Only specific wipes for optical lenses can be used.

The plastic shell can be cleaned with a soft cloth and soapy water.

Do not open the device under any circumstances. Do not attempt to disassemble, modify or repair the device, as this will void the warranty and may cause the instrument to malfunction. otherwise the warranty may be void and the instrument may malfunction.

If any issue arises, please contact the assistance on +33 5 32 18 35 43 or +1 (855)-399-0947 or by email at [support@vaonis.com](mailto:support@vaonis.com).

### **VIII. Transport and storage**

Vespera should be transported with care, keeping shocks and vibrations to a minimum.

Do not transport Vespera outside a dedicated bag or carrying case.

The telescope should be stored in a clean and dry place. If moisture is present on the instrument, it is recommended to let it dry before storing it in the box to prevent the formation of mold.

## IX. Technical characteristics

<b>General</b>	
Weight	5kg
Dimensions (H x L x D)	40 x 20 x 9cm
Usage temperatures	0°C à 40°C
Power	built-in, 7000mAh, 49Wh
Fast charge	USB PD
Battery's life	≈4h with the built-in battery
AC Adapter	Input: 100-240Vac, 50/60Hz 0.8A Output: 5Vdc 3.0A, 9Vdc 3.0A, 12Vdc 2.5A, 15Vdc 2.0A, 20Vdc 1.5A
Image Processing	Built-in and adapted to each object
Astrometry	Automatic
Included accessories	Tripod and its accessories
Control	Smartphone/Tablet via the mobile application
Connection	WiFi 2.4GHz Frequency band : 2402-2482GHz Modulation : 802.11 b, g, n (HT20), n(HT40) Maximum transmitted power : 19.6dBm (EIRP)  WiFi 5.0GHz with TPC slave without radar detection Frequency band : 5150-5350GHz Modulation : 802.11 n, ac Maximum transmitted power: 23.00dBm (EIRP)  Software : brcmfmac version 7.45.229
Mobile Application	Singularity compatible with iOS and Android
External devices	1 magnetic (power supply)
Observations	Deep sky objects (galaxies, nebulae, star clusters) Moon, Sun (with specific filter), comets, asteroids.
Warranty	2 years
<b>Optics</b>	
Lens	Apochromatic Quadruplet
Aperture	50mm
Focal length	200mm
Focal ration	F/D 4
Autofocus	Automatic
Image sensor	CMOS Sony 1/2.8"
Sensor Resolution	1920 x 1080 pixels (2 megapixels)
File formats	JPEG, TIFF, FITS (raw files 16 bits)
Field of View	1.6° x 0.9°
Filter	UV-IR filter integrated
<b>Mount</b>	
Type	Alt-Azimuth
Pointing	Automatic with star field detection

## X. Warranty

Vaonis warrants that due care has been taken in the design and manufacture of this equipment.

Vaonis warrants that the telescope will be free from defects in materials and workmanship for a period of two 2 years from delivery of the equipment.

Vaonis will repair or replace this product or part thereof when it is determined, after diagnosis with Vaonis support, that the product is defective in material or workmanship. The product will then be returned to Vaonis with the proof of purchase according to the conditions agreed upon with Vaonis regarding shipping and insurance costs.

The terms of this warranty are limited to the repair or replacement of the equipment.

Vaonis assumes no responsibility for theft or loss, damage or consequential or incidental expenses resulting directly or indirectly from the use of the equipment.

This warranty shall be void and of no effect in the event that the design or function of a product covered by this warranty has been altered, or the product has been subjected to misuse, mishandling or unauthorized repair.

Vaonis is not responsible for damage caused by misuse of the product.

Damage due to improper use, failure to follow these instructions or intervention by unauthorized persons is not covered by the warranty.

Failure or deterioration of the product due to normal wear and tear is not covered by this warranty.

If any warranty issues arise, or if you need assistance in using your telescope, contact support at support@vaonis.com

**Note:** This warranty is valid for European customers who purchased this product from a Vaonis authorized dealer in Europe. The warranty outside Europe is only valid for customers who purchased the product from a Vaonis international distributor or an authorized distributor in the country in question. Please contact them for any warranty repair.

## XI. Regulatory compliance

### **EU declaration of conformity**

Vaonis S.A.S declares that the radio equipment type Vespera is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: <https://vaonis.com/documents>



### **Federal Communications Commission (FCC) Statement**

Contains FCC ID : 2ABCB-RPICM4

This device complies with FCC 47 CFR Part 15

This equipment has been tested and found to comply with the limits for a Class B radio device, pursuant to Part 15 of the FCC Rules.



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.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

The equipment must be installed and used with a minimum distance of 20cm between the radiation source and your body.

## **XII. Disposal and recycling**



This symbol affixed to the product, its packaging, its instructions or other document or accessories of the product means that the product belongs to the family of electrical and electronic equipment. It indicates that throughout the European Union, this product, when it is at the end of its life, should not be thrown away with household products.

To avoid potential damage to the environment and human health from uncontrolled waste disposal, recycle the product responsibly to promote the sustainable reuse of material resources.

The European regulations ask you to proceed with its selective collection:

- in distribution points in case of purchase of an equivalent product,
- in collection points made available to you locally (waste collection, selective collection, etc.)

In this way you are participating in the reuse and recovery of Waste Electrical and Electronic Equipment (WEEE).