

# Operating instructions

## omegon



### **Omegon<sup>®</sup> VisioStar**

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## Omegon® VisioStar

Congratulations on the purchase of your new Omegon® VisioStar. The Omegon® VisioStar microscope is a fascinating device that allows you to examine the micro cosmos. This microscope comes with an extensive array of accessories so you can start your hobby immediately.

### 1. Preparation

Before you enter the microscopic world, familiarise yourself with this device and its accessories. Place the microscope on a flat and stable surface. Set up your workplace so that you can use the microscope easily whilst sitting on your chair. The more relaxed you are when using the microscope, the more fun you will have. The instrument runs on 220-230V, which is why it needs to be positioned close to a power socket.

#### 1.1. Delivery scope

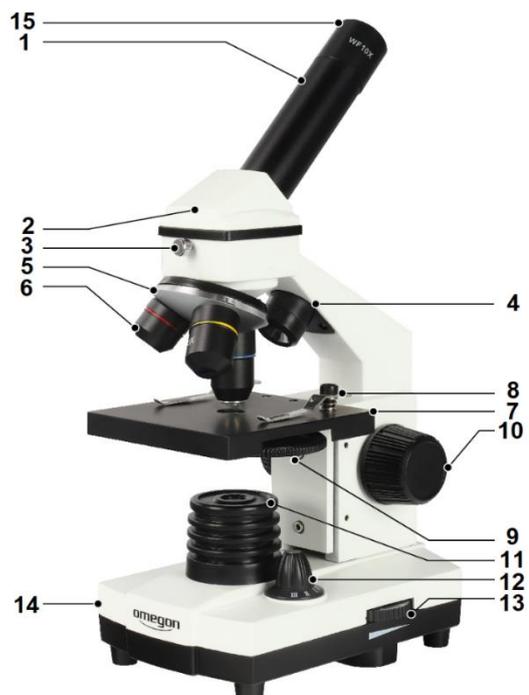
The Omegon VisioStar is supplied in a stable transport case that holds the microscope and all the accessories. You probably want to start using your microscope straight away, but take the time to check all the individual parts first. Open the case and place the microscope on a table.

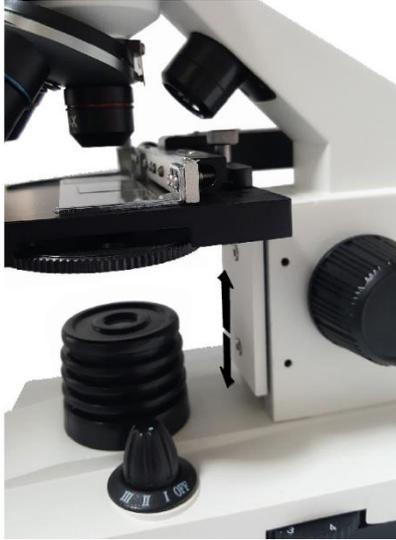


- a. Container with 5 permanent specimens and 5 slides;
- b. Salt;
- c. Gum media;
- d. Yeast;
- e. Shrimp eggs;
- f. Breeding ground;
- g. Pipette;
- h. Tweezers;
- i. Hand-held microtome;
- j. Dust cover;
- k. Plastic case;
- m. Mains adapter.

#### 1.2. The individual parts of the Omegon VisioStar.

- 1. Eyepiece tube with 45° view;
- 2. Swivel-mounted microscope head;
- 3. Fixation screw;
- 4. Incident lighting;
- 5. Revolving nosepiece;
- 6. Lens 4x/10x/40x;
- 7. Specimen stage;
- 8. Specimen clamp springs;
- 9. Colour filter wheel;
- 10. Focus wheel;
- 11. Transmitted lighting;
- 12. 3-level switch for lighting;
- 13. Dimming wheel;
- 14. Microscope base;
- 15. Eyepiece WF 10x.





**1.2.1. Eyepiece, lens and specimen stage.** Like all microscopes, the Omegon VisioStar microscope is made of different segments. The most important parts of the instrument are the eyepiece (15), the lenses (6) and the specimen stage (7). The principle is very simple. The lens is positioned centrally above the specimen stage onto which a specimen has been placed. The lens works like a magnifying glass; it generates an image in a certain focal width. The eyepiece is the element that you look through. It is usually a part comprising several lenses and magnifies the image generated by the lens. This allows you to make even the smallest objects, like cells of an onion or the marrow of a human hair, visible. The eyepiece (15) and lens (6) form one unit and belong together like wheels on a car.



**1.2.2. Viewing with the VisioStar.** The upper part of the microscope comprises an eyepiece tube (1) at an angle of 45° into which you later insert the eyepiece. Below this is the head (2) that has a prism for easier viewing. There is a small fixation screw on the front part of the head area (3). Open it slightly and you can shift your view to the right or left.



**1.2.3 The revolving nosepiece.** The revolving nosepiece (5) is located just below the microscope head (2). It has three openings into which three different lenses (6) are screwed. These vary in length. Each lens has a different colour to help distinguish them. Test the revolving nosepiece (5) by turning it and notice how it clicks into place at a specific point. This is always the case when a lens is in the observation position (middle of the light axis).



Fig. 6. The specimen stage.

**1.2.4 The specimen stage.** Place the specimens that you want to examine later on the specimen stage (7). This has two specimen spring clamps (8) that hold the respective specimen in place on the specimen stage. When you clamp the slides (8), they are held in position so that you can examine them manually under the lens. The specimen stage (7) itself is always in a specific position that can be adjusted using the two large black focus wheels (10) on the right and left of the Omegon VisioStar. You will see how the table rises and lowers when the wheels are turned.

**Important**

These focus wheels adjust the focus.  
The optimum focus is found as the table moves.



**1.2.5 Filter wheel with colour filters.** At the side of the specimen stage there is a filter wheel (9) in which there are five different colour filters. This can be used to improve the contrast, in particular of colourless objects. Simply test which filter shows the best effect on your object.

**Caution**

The lens, specimens and table must not collide.

**1.2.6. The lights of the Omegon VisioStar.**

You can see the LED lights (11) of the instrument in the lower area. A white, very bright LED ensures that your specimen is ideally illuminated. Your Omegon VisioStar microscope has a three-level lighting system:

1. Transmitted lighting (11)
2. Incident lighting (4)
3. Transmitted and incident lighting

Use the knob (2) to select between the positions:

- OFF
- I for transmitted light
- II for incident light
- III for transmitted and incident light



Fig. Knob



Fig. Transmitted light



Fig. Incident light

The knob (13) on the left-hand side can dim the entire lighting steplessly. To gauge the dimming level, there is a scale of 1-8 for the steplessly set position.

The casing of your Omegon VisioStar microscope is made of metal, making it a highly durable device that will serve you well for many years.

**2. Getting started - operation of the Omegon VisioStar.** Find a comfortable place to observe your specimens so that using your microscope is a great experience. The microscope comes with a mains adapter (m) that you can simply plug into a socket in your home. Simply connect the DC connector to the designated socket on the rear of the microscope.

**Tip**

Before using the microscope, ensure that the knob (12) is set to the OFF position.  
Only switch it on after the mains adapter has been attached.

**2.1. Practical observation.** Before you start, always ensure that the specimen stage (7) has been moved down. This is extremely important in order to prevent any damage to the lenses.

**2.2. Eyepieces and magnification.** The delivery scope includes an eyepiece (15) with the designation WF10x. Simply slide the eyepiece into the eyepiece tube (1) to observe the specimen. The magnification is always calculated in connection with the lenses of the revolving nosepiece. The lenses have the values 4x, 10x and 40x.

**Tip**

Before using the microscope, ensure that the knob (12) is set to the OFF position.  
Only switch it on after the mains adapter has been attached.

**How to calculate the overall magnification of the microscope**

Magnification of the eyepiece x magnification of the lens

Example: WF10x x 10x lens = 100x magnification

Always start with the smallest magnification: You then have a large focal range and also protect the microscope against damage. Find the optimum focus by slowly turning the large focus wheels (10) on the right and left of the microscope. Increase the magnification slowly - step-by-step. In this case, you only need to carry out small corrections with the focus wheel.

Increase the magnification by turning the revolving nosepiece, i.e. by changing the lens.

#### Caution

When adjusting the magnification, ensure that there is always enough space between the lens and the specimen.

**2.3. Your first test observation.** The delivery scope of the *Omegon® VisioStar* includes a container with 5 prepared permanent specimens (a). This allows you to start working with the microscope immediately. There are also 5 slides with permanent specimens. These can only be used with optional cover glasses.

*Caution: The delivery does not include cover glasses.*

Take one of the permanent specimens from the storage box for your first observation. If possible, hold the slide tightly between your thumb and index finger. Please be aware that the slide is made of glass and can break, if too much pressure is exerted.

- Assume a comfortable position (on a chair) in front of the microscope and place the slide carefully onto the specimen stage. Carefully lift the spring clamps (8) first and then slide the specimen below the spring clamps.
- The microscope is able to illuminate the objects from below and also from above. Lighting from above is recommended for non-transparent, thin objects, e.g. a postal stamp. For your current observation, i.e. a permanent specimen, you only need transmitted light, i.e. lighting from below. To do this, move the switch (12) from the OFF position to position I. The LED light will shine from below immediately.
- Ensure that the filter wheel disc (9) is in a position to allow light to enter the opening. It is advisable to start without a colour filter.
- Move the specimen stage (7) all the way down until it reaches a stopping point. Now you should place the eyepiece WF 10x (15) into the eyepiece tube (1) and turn the revolving nosepiece until the 4x lens (6) clicks into place.
- The specimen is visible to the naked eye. Whilst examining this specimen, push the slide with the specimen through the field of vision of the eyepiece and thus through the transmitted light beam of the microscope. **Caution:** Optionally, a matching mechanical stage can be mounted with which the specimen can be moved in two axes by means of precision wheels (article number # 62506).



- If the light is too bright, you can dim it (13). Approach the eyepiece with your eye carefully. Your eyelashes may touch the eyepiece slightly.
- Whilst looking through the eyepiece, turn the focus wheel (10) until the right focus has been reached. The image may appear blurred and white at first, then a shadow comes into view from the white blur.
- Now you can increase the magnification: Simply turn the 10x eyepiece into position. The specimen will appear blurred again; but by turning the focus wheel (10) you can bring it into focus again. You will be amazed how many details you can see with a 100x lens.



*Fig. Use of the optional mechanical stage adapter (Art.No.62506)*

#### **Important information**

If the microscope is designed for use by a child, we recommend removing the microtome (black with a razor blade) or only using it if supervised by an adult.

The accessories also include a pair of tweezers (h), a microtome (i) for thin slices and four containers with varying contents (gum media, yeast, salt and shrimp eggs) (b-e).

This marks the start of your journey into the micro cosmos where there are so many fascinating things to discover.

**2.4. Specimens.** You can now produce your own specimens for examination with your microscope. The most simple method is to take a fresh specimen:

##### **2.4.1. Preparation of a fresh specimen.**

- Take a clean slide.
- Use a pipette (g) to place a drop of water into the middle of the slide (preferably distilled water).
- Use tweezers (h) to place the object into the water drop.
- Carefully position a cover glass (available separately) to the side of the water drop and let it lower gently onto the water drop.

Fresh specimens will only keep for a short while, but they can be made into a permanent specimen by using gum media. Instead of water, place some gum media onto the slide, place the object inside and position it on the cover glass. After the curing period, you have a permanent specimen.

**3. Cleaning and care.** The Omegon VisioStar you have purchased is a high-quality instrument. If treated carefully, it will serve you well for many years. It is very important to protect the microscope against dust. After observing the specimens, return the microscope to the transport case (k) or use the dust cover (j) that is included in the accessories.

If you remove the eyepiece, please always remember to cover the tube with the protective cover.

The lenses do not need to be unscrewed; this prevents dust entering the inside of the microscope.

Should the lenses become dusty, wipe carefully with a lens dust brush. In the case of stubborn dirt, you can use an optical cleaning agent or isopropanol (alcohol) available from chemists. Make sure that you use optical cleaning cloths or something similar.

Sometimes the specimen stage can become soiled with fluids. Clean it with a paper towel as quickly as possible.

**Tip**

Do not overdo it with the magnification.  
The highest magnification does not always guarantee the best image.  
Find out for yourself which magnification leads to the best results.

We can supply a matching mechanical stage adapter as an accessory:

- **Art.No. 62506** - Omegon mechanical stage



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