

omegon



Instruction Manual

Dobson 76/300 DOB

English version 8.2014 Rev A

The Omegon® 76/300 DOB

Congratulations on the purchase of the new Omegon® 76/3006 DOB. This small telescope will give you hours of fun, with its all optical glass mirror and super compactness, and it is the ideal companion to start in the world of amateur astronomy. With this telescope you will be able to see the craters on the Moon, star clusters, some nebulae and a glimpse of the Jupiter disc features and its Galilean moons and the rings of Saturn. We have included many accessories so it will be easy to use this telescope.

1. Included parts

we have included several accessories that will make the use of the telescope easier and fun, please take a look at the list of the parts so you can identify them in the future.

1. 1.5x Erecting Lens;
2. 2x magnification Barlow Lens;
- 3, 4, 5 and 6. Four eyepieces 1.25" (31.75mm); a H20mm, H12.5mm, H6mm and a SR4mm eyepiece;



Figure 1. Parts list.

were assembled in the factory. You just need to remove the dust cap from the telescope's aperture and start using your telescope. The dobsonian mount is a simple telescope mount that moves up and down and rotates on its base. This is great because makes the use of the telescopes extremely easy and intuitive. The side hand knob allows to increase friction and thus allowing to adjust smoothness of movement (figure 4). To start observing insert an eyepiece (start by the low power eyepiece H20mm) make sure to tighten the focuser thumbscrew. Rotate the focuser knobs to get perfect focus. Start by choosing a distant terrestrial object, like a distant tree or church tower. This will allow you to get familiarized with the telescope operation for night use. For terrestrial view you can use the supplied erecting lens (as shown in figure 6).

2. Getting Started.

It is very simple to get started. Here is how the telescope works. The telescope aperture should point to the object being observed. The mirror on back of the tube will gather the light coming from the object and reflects it to the secondary mirror that brings it to the eyepiece. Close to the aperture there is the focuser. The focuser moves up and down to get a precise focused image. At the focuser one can use the supplied accessories. Different accessories combinations give different results, such as different image magnifications or correct image for example. But all this will be explained in detail in the next pages.

3. Assembly. Your telescope comes fully assembled. The tube and the dobsonian mount

ATTENTION! Never look at the Sun through a telescope. Concentrated Sun light may cause serious eye injury. Children should use only with adult supervision!



Figure 2. Telescope pointing up (at the zenith).

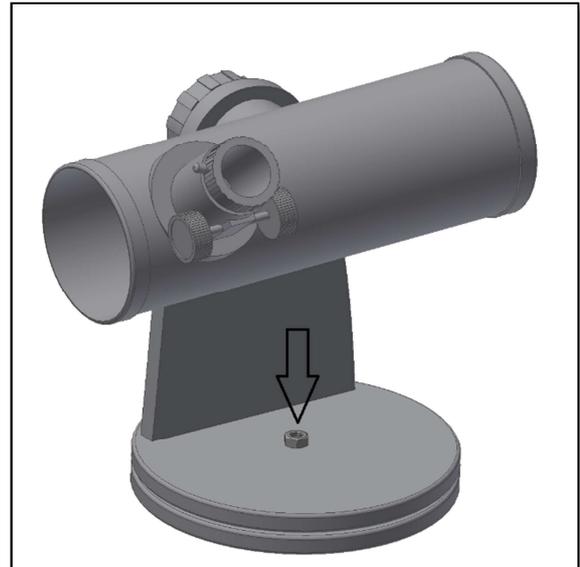


Figure 3. Adjust telescope movement at the central nut.

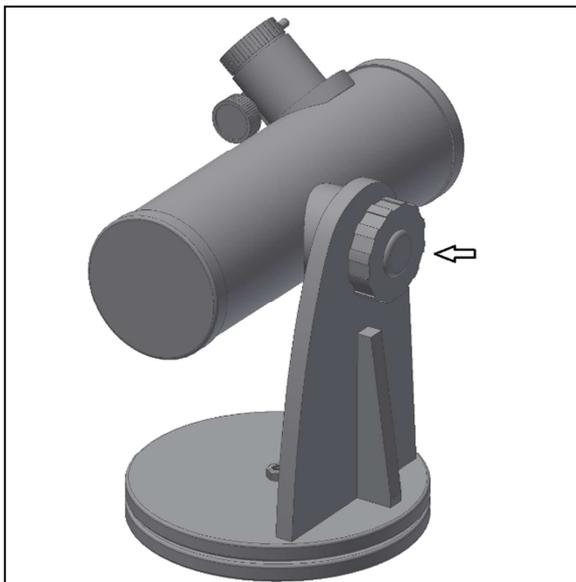


Figure 4. Hand-knob to fix the telescope.

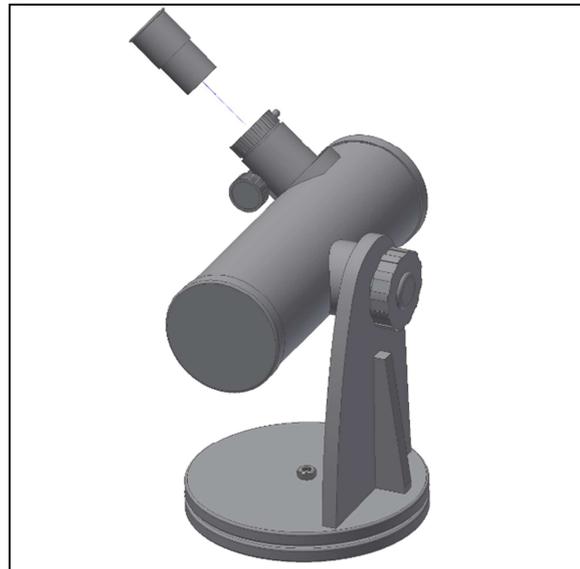


Figure 5. Insert the eyepiece in the focuser and tighten the side thumbscrew.



Figure 6. Erecting eyepiece for terrestrial view.

Use the telescope on top of a table or a solid raised surface. This makes the use of the telescope much more comfortable and fun. Try different eyepieces and accessory combinations (please see how in page 5). If friction adjustment is required in the azimuth axis use a nut wrench (not supplied) to release or tighten the axis nut (figure 3).

4. What can be seen with this telescope?

Below you will find some examples of what you can expect to see when using this telescope.



4.1. The Moon is one of the most spectacular objects to be seen through a telescope. Even a small telescope will reveal high detail of the Moon's surface. You will be able to see the craters on the Moon's surface and other features like the Mare. The moon is a very bright object. It is better observed when the Moon is not full. Try the crescent Moon and look for features along the terminator (between illuminated and dark surfaces).



4.2. Jupiter is the biggest planet of our solar system. It is also one of the favorite targets for beginners. Galileo was able to discover that the four tiny dots that turn around the planet were in fact part of Jupiter's system of moons. With this telescope you will be able not only to see Jupiter's planet disc with its two major discernible bands but also its biggest moons, Io, Europa, Ganymede and Callisto.



4.3. The "lord of the rings" of the night skies, Saturn is by far the most popular target for small telescopes. Saturn's rings are discernible even at 60x magnification. In a very good night you will be able to see the Cassini's division (the darker band on the Saturn's rings).

5. Using the accessories, a bit of math to understand how all it works.

Using the accessories is easy and fun. To change magnification simple swap eyepieces. To get more magnification simply use the barlow lens. But how all of this work?

$$\frac{300mm}{20mm} = 15 \text{ power}$$

This means that the H20 eyepiece provides a 15x power (magnification). This seems low but try it, you will see a a bright image with some very good detail.

5.1. Power (magnification)

Your telescope as a focal length of 300mm. This is approximately the distance between the telescope lens to its focal point (very similar to the distance between the focus point of a loupe and the loupe lens). This is a very important feature that allows to determine several interesting facts such as magnification.

The magnification is determined by the telescopes focal length and the used eyepiece. You probably noticed that the two supplied eyepieces are H20mm and H6mm. This means that the H20mm is a 20mm focal length eyepiece while the H6mm is a 6mm focal length eyepiece.

To determine the magnification just devide the telescope focal length by the eyepiece focal length. Lets give an example for our telescope and the supplied eyepieces:

Telescope focal length is 300mm
H20 eyepiece focal length is 20 mm

5.2. Barlow Lens

The barlow lens is a very interesting device. It is a negative lens that multiplies the telescopes focal length. So a 2x Barlow multiplies the original focal length by 2x, in this case $300mm \times 2 = 600mm$.

A 3x Barlow lens multiplies by 3x.

Your telescope is supplied with a 2x Barlow lens. When used with the H20 eyepiece you get 2x the power obtained before
 $15power \times 2x \text{ Barlow} = 30 \text{ power}$

5.3. Erecting lens

The erecting lens gets you a upright image view with the telescope. It also adds some power like the barlow lens. The supplied Erecting Lens provides and extra 1.5x power.

Here are some examples on how to use the accessories.

Some possible accessory combinations

	Terrestrial View	Moon	Deep Sky	Jupiter and Saturn
Erecting Eyepiece 1.5x	Yes	Yes		
Barlow Lens 2x				Yes
H12.5 Eyepiece		Yes		
H20 Eyepiece	Yes		Yes	
H6 Eyepiece				Yes
Power	23x	48x	15x	100x

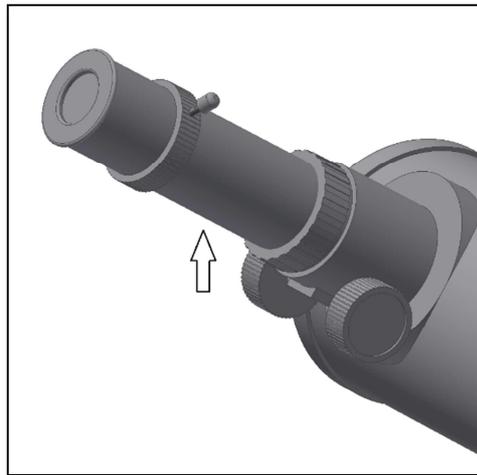
6. Troubleshooting and frequently asked questions

Q: I can't get to focus my telescope, only get a bright circle.

R: Make sure you have inserted the Diagonal and an eyepiece (start by the lowest power eyepiece – H20). Point to a distant object during the day and proceed as described in 4.

Q: I get a mirrored view of the objects. Like if they were reversed, and R show up like Я

R: This is caused by the Diagonal Mirror. It has a mirror inside. To get a corrected image it is



necessary to use the Erecting Lens and the Eyepiece as shown below.

Q: When I use the barlow lens and the H6 eyepiece the image is so dark I can't hardly see anything.

A: Power should be used with moderation. It depends on how stable the atmosphere is, too much turbulence causes image distortion. Usually the limit is 2x for each millimeter of the telescope aperture. In this case this telescope, the telescope has an aperture of 76mm so in a very good night you should be able to reach 154x. The more magnified the image is the darker it gets.

Q: Is my telescope compatible with other eyepieces ?

A: Omegatelescopes are compatible with all telescope eyepieces from different manufacturers as long as the eyepiece is a 1.25" (or 31.75mm) size eyepiece. If you would like to test an eyepiece from a fellow astronomer go ahead. Different eyepieces provide different visual experiences.

Q: I want to use my telescope to take pictures

A: This telescope is designed for visual use. It doesn't mean it can't be used for photography, however it will be hard to get high quality pictures with this telescope. If you have a smartphone you can shoot the Moon or some terrestrial objects. Search online for digiscoping and afocal photography.

Q: The stars only appear as points in the telescope

A: Stars will always appear only as points, even in the largest telescopes in the world. It is more interesting for beginners to observe two-dimensional objects, such the moon or planets. Once you find these, you will be able to start learning about the astronomical calendar.

Q: I would like to observe the Sun

A: An appropriate solar filter, placed over the objective, is essential for observing the sun. These are

available as plastic foil or glass filters. They allow only a tiny and harmless fraction of sunlight into the telescope when securely positioned over the objective, so allowing you to observe the sun in complete safety. Eyepiece solar filters (not available from us) should be avoided at all costs as they are considered unsafe.

Note: Never look directly at the sun through a telescope without an objective solar filter!

Q: I can't see anything when I look through my telescope

A: The telescope is only suitable for astronomical observing and when used outside at night. Observing from inside the house or during the day is not usually possible.

The dust caps must first be removed and an eyepiece inserted before you can start observing. Are you sure you have removed all the dust caps, not just the small ones? If you have not, then no light will enter the telescope and everything will appear black.

Annotations

For any other questions please feel free to drop a line or visit our website at:

<http://www.astroshop.de>

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