

Instructions Manual

omegon



Omegon® AC 70/400 Backpack AZ

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The Omegon® AC 70/400 Backpack AZ

Congratulations on the purchase of the new Omegon® AC 70/400 Backpack AZ. This telescope will give you hours of fun, with its optical glass lens and light gathering capability it is the ideal companion to start in the world of terrestrial view and the night sky. With this telescope, you will be able to see the craters on the Moon, Sun Spots (with the supplier Sun filter), the Galilean Moons and the rings of Saturn.

Included parts.

- a - Aluminium Tripod;
- b- Optical tube;
- c- 5x finderscope;
- d- K20mm eyepiece 1.25";
- e - K10mm eyepiece 1.25"
- f - Prism 1.25";
- g - Sun filter;
- h – Back pack (not shown)

Figure 1. What's included.



1. Knowing your telescope.

1.1. The Optical Tube (b)

The optical tube is one of the two main parts of the telescope. It has a glass lens (objective) - (1) at one end. The objective gathers light from objects. This telescope has a 70mm (2.7") objective, this is the lens diameter. On the opposite end of the objective there is the focuser (9). The focuser is a mechanical system that extends a tube #5. It allows in combination with the prism (8) and one of the two eyepieces K20mm (e) and K10mm (d) (included) to obtain a magnified image that can be observed peeking through the eyepiece lens. The optical tube also carries a small telescope - finderscope - (c) which is used to aim the optical tube to an object to be observed. A tripod is required to point and a Sun filter can be used to observe the Sun.

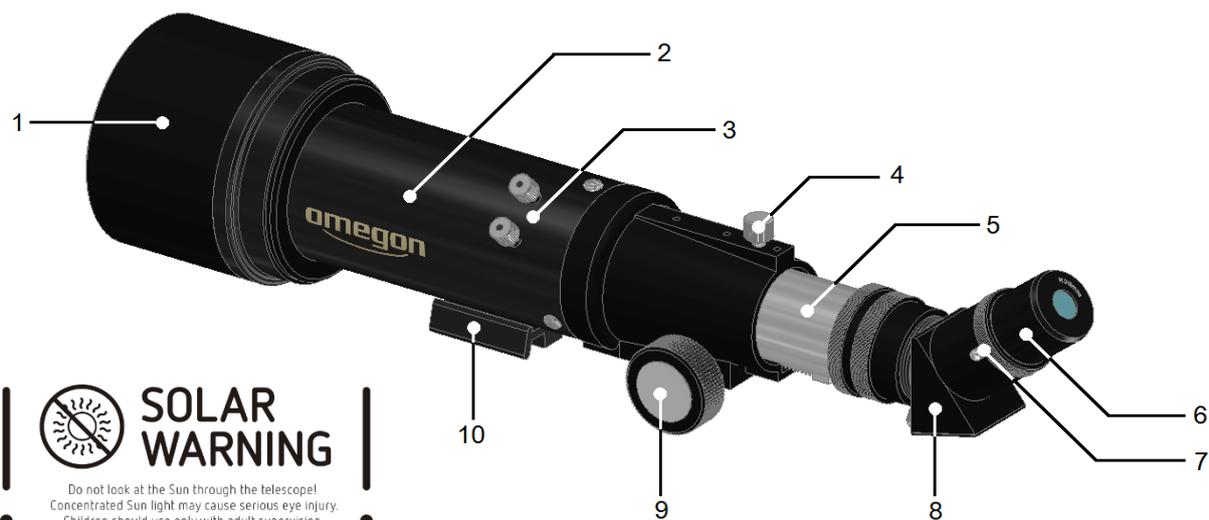


Figure 2. Optical Tube.

- | | | |
|---------------------|-----------------|---------------------|
| 1- Objective lens | 2- Optical tube | 3- Finderscope base |
| 4- Brake (focuser) | 5- Draw-tube | 6- Eyepiece |
| 7- Prism thumbscrew | 8- Prism | 9- Knob (focuser) |
| 10- Dovetail | | |

1.2. The tripod (a). The supplied aluminium tripod is used as a platform to place the optical tube. Here are some details about the tripod's head – figure 3.

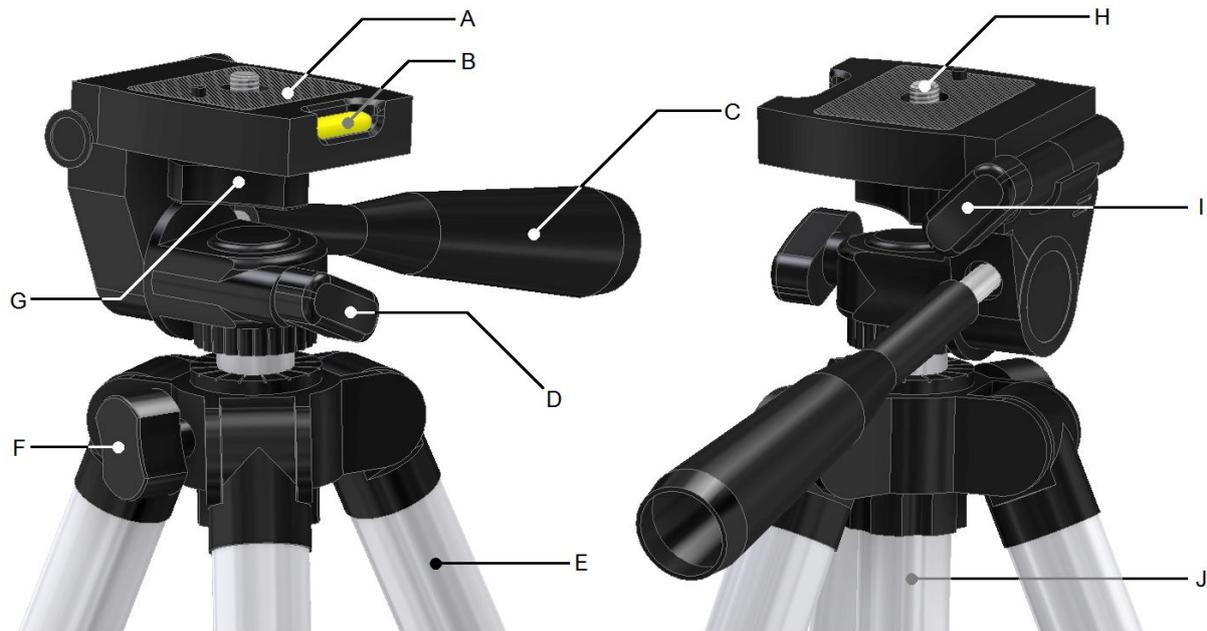


Figure 3.

- | | |
|----------------------|--------------------------|
| A- Telescope base; | B- Bubble level; |
| C- Hand Grip; | D- Lock-az; |
| E- Tripod Leg; | F- Lock (shaft); |
| G- Lock (telescope); | H- ¼\"-20 Camera thread; |
| I- Lock (tilt); | J- Shaft. |

1.2.1. Extending the tripod. The tripod is compact and the metal legs can be extended into several configurations. A central shaft allows additional extension if required – figure 4.

The most stable configuration is, however, with the tripod's legs collapsed to their minimum. It's recommend using the collapsed tripod on a table top for more comfort and stability.



Figure 4.

1.2.2. Camera base (A). The tripod's camera base (A) is compatible with most photo and video cameras having a ¼\"-20 thread standard. It also allows to level horizontally by using the integrated bubble level (B).

1.2.3. The hand grip (C). Is used to direct and point the tripod to a certain direction it also acts as a brake to fix the tripod to a certain tilt. Release to tilt the camera base (A) – figure 5.

1.2.4. Rotating the tripod head in az. Release the Lock-az (D). One can see that the tripod head now rotates freely around the tripod's shaft (J) – azimuth movement. Tighten to lock in a specific azimuth direction – figure 6.



Figure 5.

1.2.5 Using the shaft extension. Release the Lock (shaft) – (F), so that the central metal shaft can slide up and down. Make sure to re-tighten after choosing the required position – figure 7.

1.2.6. Tilt the telescope base. There is an

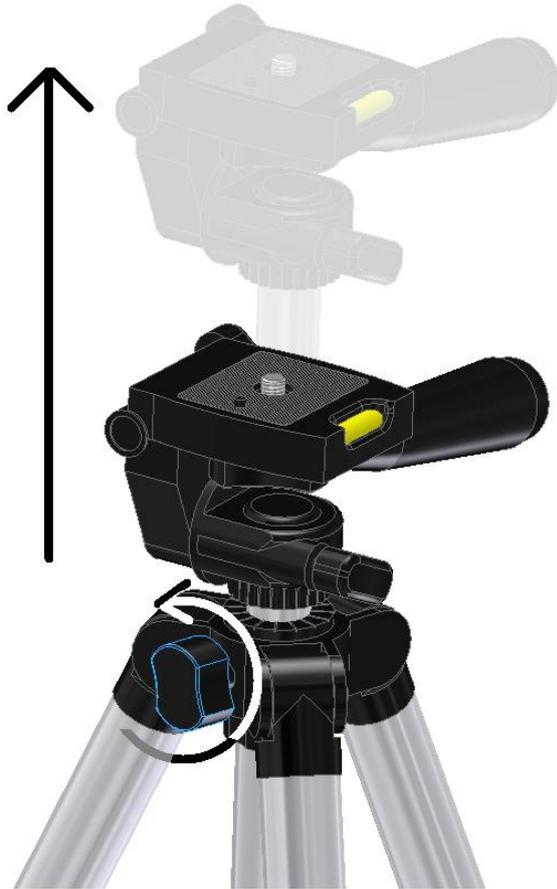


Figure 7.

2. 2. Getting Started.

2.2.1. First step is to fit the optical tube to the tripod. Proceed as mentioned before in 1.2.6. by tilting the telescope base (A). Use the Lock (tilt) – (I) to tighten firmly the optical tube to the tripod. The telescope dovetail (10) is also *Vixen-Style* compatible and makes this telescope compatible with many other advanced mounts. The telescope should be pointing in relation to the tripod as shown in figure 10.



Figure 6.

additional possibility that allows tilting the camera base. This is only necessary to fix the telescope or a camera to the tripod. Release the Lock (tilt) – (I) so that the Lock (telescope) – (G) hand knob is accessed easily – figure 8.



Figure 8.



Figure 9.



Figure 10.

Make sure the grip (C) is pointing to the same side as the drawtube (5).

Did you know?

The Vixen-Style dovetail (10) with ¼" -20 camera thread makes the optical tube compatible with many other more advanced mounts such as equatorial mounts and can even be used as a guide scope for astrophotography.

2.2.2. Setting the finderscope to the optical tube. To set the finderscope to the optical tube start by removing the two thumbnuts from the respective screws and face the finderscope as shown. The finderscope is used to aim the telescope to a target (like in a riffle) - figure 11 and figure 12.



Figure 11.



Figure 12.

Align the finderscope before using the telescope - please look for instructions in Annex A.

2.2.3. Setting the prism and eyepiece to the focuser. Simply slide the prism's (f) metal barrel to the focuser's tube and fix using the two focuser's thumbscrews. Turn the screws so that the prism and eyepiece do not fall or slide when observing. Choose the K20mm eyepiece (e) and fix it to the prism too – figure 13.



Figure 13.

Your telescope should look like in figure 14.

3. First steps.

3.1. Learning to focus. Make sure to get used to use the telescope during daytime. This is a great telescope for terrestrial viewing too. Remove the dust cap from the telescope's objective. Point to an object – at least half a mile (800 metres) away, it can be a tree or a building. **Make sure never to point to the Sun (or its vicinity without using a full aperture Sun filter).**

Now rack the focuser all the way in. Use the Knob (focuser) (9) and slowly start racking-out the drawtube (5). This will expose the chromed drawtube (5). Look through the eyepiece when doing this. A sharp image will start to form. The point where the image is very sharp is the focus. Use first the



Figure 14.

K20mm eyepiece (e) which provides the lowest power but the brightest image. Replace the K20mm with the supplied K10mm to get more magnification if necessary. You may need to re-focus when changing eyepieces.

3.2. Sun observations. A telescope should never be pointed to the Sun or its vicinity. The Sun light entering the telescope will concentrate in the eyepiece. It will cause permanent retina damage or even blindness to the observer. For Sun observation, a dedicated front aperture filter is required (supplied).

Children should only use this telescope for Sun observation with the supervision of an adult!
 This telescope is not a toy and should be used with caution especially during daytime observations. Children should always be taught about the dangers of pointing a telescope to the Sun!

Before observing the Sun check the supplied Sun filter. The Sun filter is made from a special coated plastic foil that is fragile and can easily be scratched or pierced. Examine the solar filter with a strong incandescent bubble light (placing the filter between the light bulb and you). Make sure that no holes or scratches are visible. You should however see the filament of the light. Filter with no holes or scratches are usual in good condition for Sun observation. **3.2.1. Fitting the solar filter to the telescope.** Now that the filter (3.2.) fit it to the telescope as shown. The filter should have a tight fit to the telescope and should not fall-off during the Sun observation – figure 15 & 16.



Figure 15.



Figure 16.

4. Specifications and Features.

Objective

Aperture: 70mm
 Focal length: 400mm
 Focal ratio: f/5.7
 Design: Achromat

Eyepieces

Design: Kellner
 Focal length: 20mm and 10mm
 Barrel size: 1.25" (31.75mm)
 Filter thread M28.5x0.6

Guarantee

Europe 2 years
 U.S.A. and Canada 1 year from the date of purchase.

Weight & Dimensions

Tube length: 1ft (30cm)
 N.W. 4lb (1.7kg)

Solar Filter

Foil: Baader Astrosolar Film

Origin

P.R.C.

Finderscope

single lens 5x

Tripod

Max extension 4.5 ft. (134cm)
 Min extension 1.5 ft (45cm)
 Materials: ABS and anodized aluminium
 Fit: ¼"-20 camera thread

5. What can be seen with this telescope?

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



5.1. 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 to observe it when the Moon is not full. Try the crescent Moon and look for features along the terminator (between illuminated and dark surfaces).



5.2. 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 not only be able to see Jupiter's planet disc with its two major discernible bands, but also its biggest moons, Io, Europa, Ganymedes and Callisto.



5.3. 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).

Annex A

5. Aligning the Finderscope.

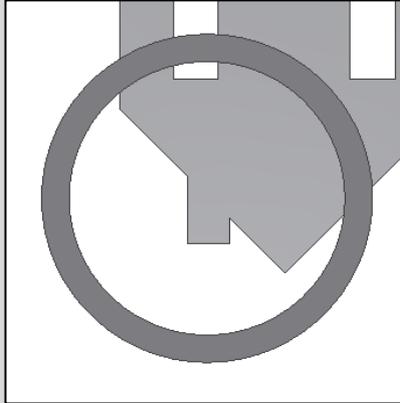


Figure A. A distant object is centered at the telescope's field of view. In this example we have a house with a chimney. The chimney is the reference point to place at the center of the field of view. We first look through the telescope with the lowest magnification possible (K20mm should be preferable). So we have the widest field of view.

STEP 1

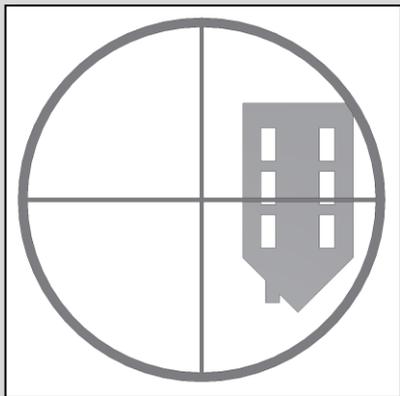


Figure B. Looking through the finderscope we see the same building but in this case the chimney is not centered. We adjust the finderscope using the three thumbscrews so that the finderscope moves slightly. This is enough to correct the objects position in the finderscope. Trial and error is required to get a satisfactory result. Make sure to tighten the 3 screws after finishing so that the finderscope tube does not move.

STEP 2

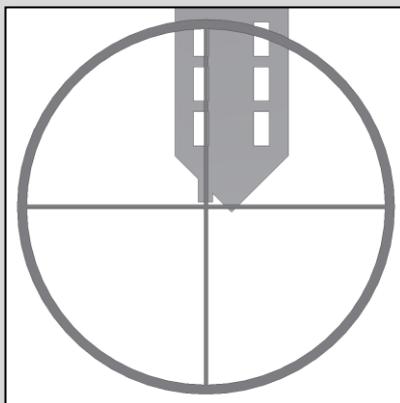


Figure C. After playing with the three finderscope thumbscrews and some trial and error we get the finderscope recticle close to the center (in this case the chimney). The Finderscope is now ready to use!

STEP 3