

Instruction Manual

Omegon® EQ-500 Polar Finder

Congratulations on the purchase of the new Omegon® EQ-500 Polar Finder. The Omegon® EQ-500 Polar Finder is used for precise polar alignment of the Omegon® EQ-500 mount. It has a built-in illuminated reticule (battery-powered – 2x LR41) that can be used for both North and South Hemispheres.

1. Included Accessories. We have included 2x LR41 button batteries so you can start using the polar finder right away. Make sure to open the battery compartment to assure the batteries as in perfect contact.

2. Getting Started. Start by getting familiarized with the polar finder (figure 1)

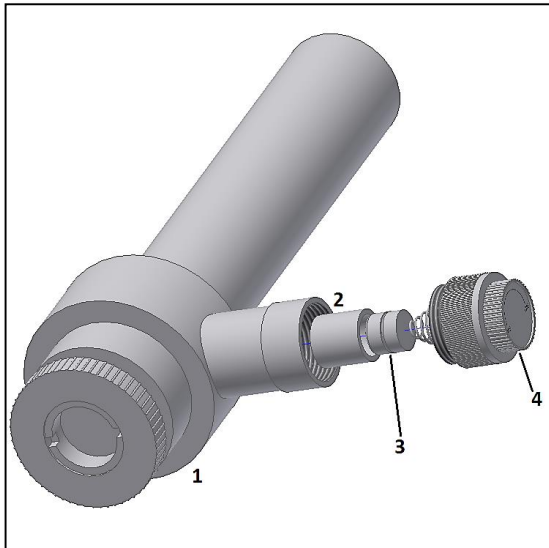


Figure 1. Polar finder main parts.

- 1 - Polar finder eyepiece;
- 2 - Spacer;
- 3 - Batteries;
- 4 - ON/OFF rotating button.

Peek through the polar scope's eyepiece. Rotate the eyepiece to get a sharp focused image of the reticule. This should be done during the day pointing to an illuminated surface (**do NOT point at the Sun!**)

3. Assembly

3.1. Mounting the polar finder.

Remove the two polar shaft plastic dust caps from the mount as shown in figure 2. The top dust cap is threaded, turn it counter-clock-wise to release it, the back dust cap can simply be pulled. When peering through the polar shaft you should be able to have an unobstructed view from one end to the other. Rotate the Dec. axis by 90 degrees (figure 6) to get an unobstructed view. Release the three hex screws using an Allen wrench (not supplied) as shown in figure 3. Insert the Polar finder (figure 4), when sliding in the polar finder some friction may exist as it has to go through an internal rubber O-ring. Make sure to slide the polar finder all the way-in. Retighten the three hex screws (figure 5). The polar finder should be firmly fixed after this.

3.2. Aligning the mount's polar axis with the mount's mechanical axis.

Now it is time to align the mount's mechanical axis with the polar finder's optical axis (and also mount's mechanical axis). Remove the mount's counter-weight shaft's and point the mount to a distant object (figure 6), just like you would do when aligning the telescope's finder scope. The image should be focused and the reticule should overlap the background image. Search a distinct landscape feature – a mark - such as a church tower, a pole etc... centre it in the field of view and make it coincident with the centre of the reticule (figure 8), use the mount's azimuth and altitude's knobs for this (figure 7). Make sure the mount's Dec. is pointing up (figure 6). Now rotate about the R.A. to the opposite side (rotate 180 deg. from current position – figure 9). When looking again through the polar finder you can see that the mark at the centre of the reticule's cross moved to an off-centre position (figure 10). This means that the optical and mechanical axis of the polar finder and mount are not parallel (coincident). Adjust the mark's position half way (d divide by 2) to the reticule cross's direction, use the three hex screws previously used to fix the polar finder. It is important that only half of the error is corrected. Use the mounts azimuth and altitude knobs to correct the rest of the distance. The mark will be centred again with the reticule's cross. Now rotate the mount back to the initial position (vertical – figure 6). The mark moved again, but certainly closer to the reticule's cross than before. Re-do the procedure. Correct just half of the distance with the hex screws and the rest with the mount's azimuth and altitude knobs. Do this until there is only a slight shift when rotating the mount again by 180 degrees.

4. How to use the polar finder

Now that the polar finder is optically aligned with the polar mechanical axis it is time to understand how to use it. The reticule has a central cross-hair (cross). There is also a representation of some stars for southern hemisphere's users. The two aluminium discs on the mount close to the polar finder have divisions (scales). One is divided into 12 months and also has E 20 10 0 10 20 W mark on it (figure 3). The other one (cylindrical shape) is divided in 24 hours. They are used to position the polar finder accurately so than when polar aligning, the Polaris is located along the vertical reticule line at the small circle.

Rotate the hour disc so that the vertical line on the reticule matches the 0 position on the E 20 10 0 20 10 W mark (figure 12). Release the hex screw to rotate the mark ring as shown in figure 13. Determine the longitude of your observing site (example Berlin is at approx. 13, 25° E). The legal time in Berlin is the European Central time (15° E) – do not use daylight savings. The difference between the legal meridian hour and the local longitude is the correction that needs to be added to this disc. Rotate the E 20 10 0 10 20 W disc (month disc) so that the correction is added. If you are west of the meridian turn to W if east turn to E. As mentioned in the previous example (Berlin): 15 deg. – 13, 25 deg. = 1,75 deg. (the additional correction). Rotate the disc 1,75 deg. to E. Now tighten the locking thumbscrew as shown in figure 16, make sure 0 coincides with the thumbscrew (rotate the hour disc to 0). Release the R.A. and rotate the R.A. axis until the hour and the day match. Fix the R.A. axis. Centre Polaris in the vertical line in the circumference – Figure 18 using the mount's azimuth and altitude knobs. Release the thumbscrew previously tightened. Your mount is now polar aligned.

English version 10.2014

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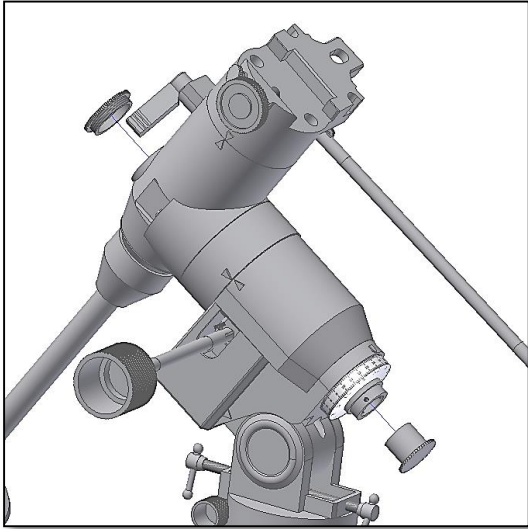


Figure 2. Remove the two plastic dust caps.

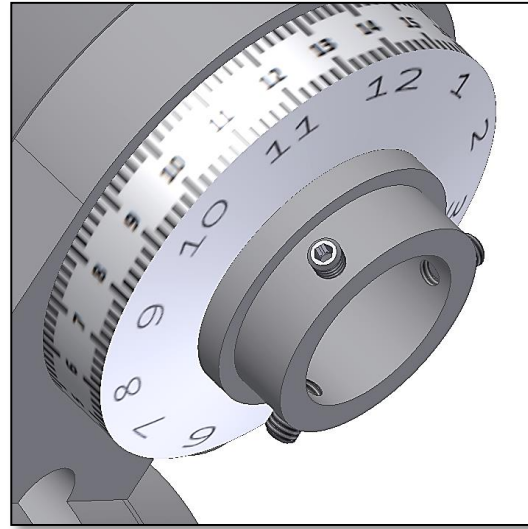


Figure 3. Release the three hex screws.

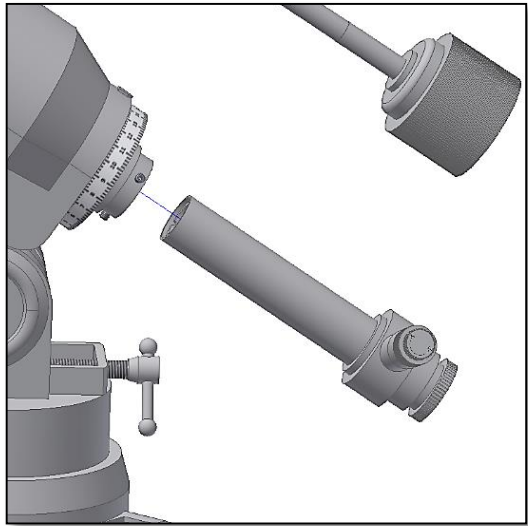


Figure 4. Slide the polar finder all the way-in.

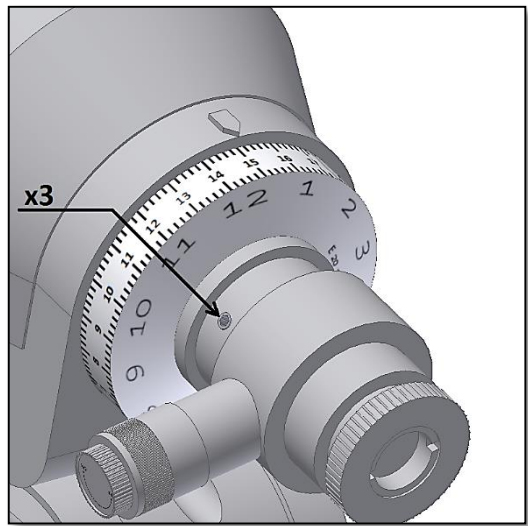


Figure 5. Retighten the 3 hex screws.

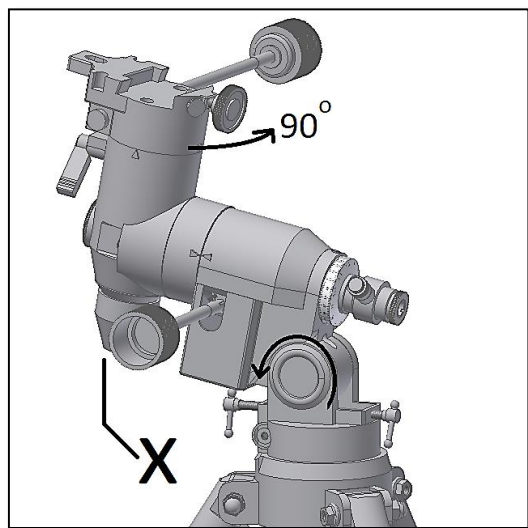


Figure 6. Remove counter-weight shaft (marked X) and point to an object. Keep the mount vertical.

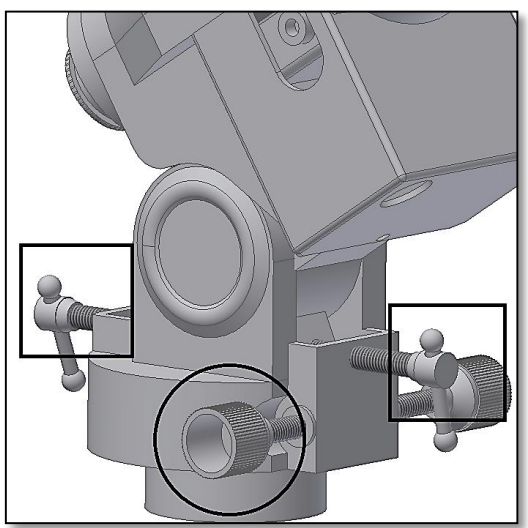


Figure 7. Centre object mark at the centre of the reticule.

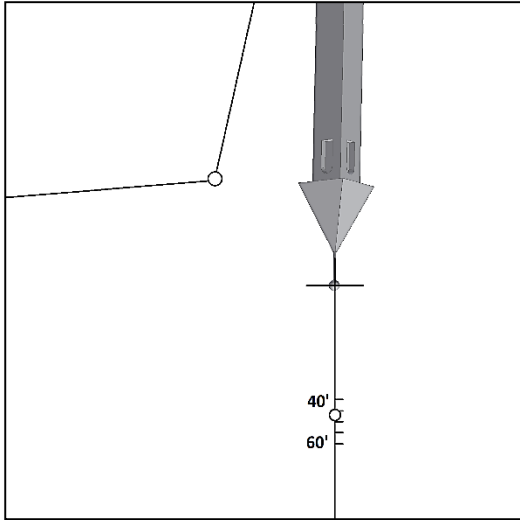


Figure 8. Centre the mark with the reticle.

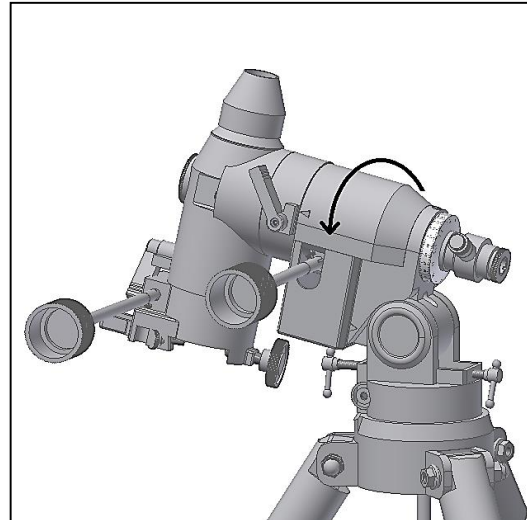


Figure 9. Rotate the mount 180° from its original position.

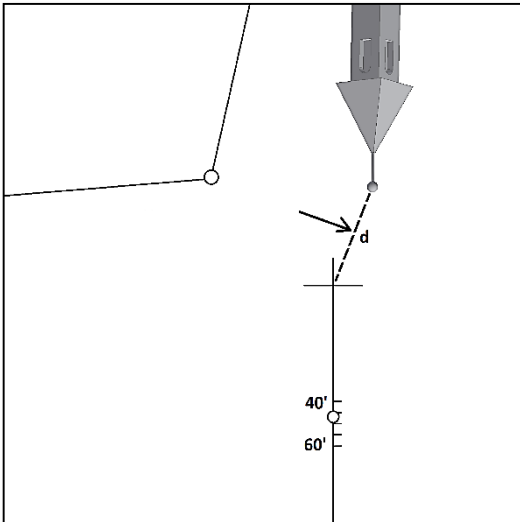


Figure 10. Observe that the mark shifted from the centre.

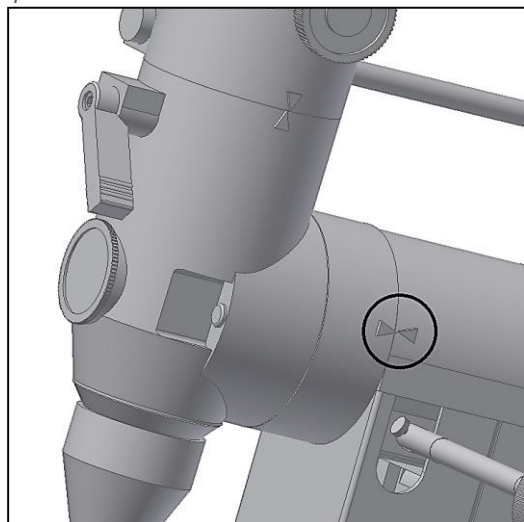


Figure 11. Place mount vertical with the two R.A. coincident marks.

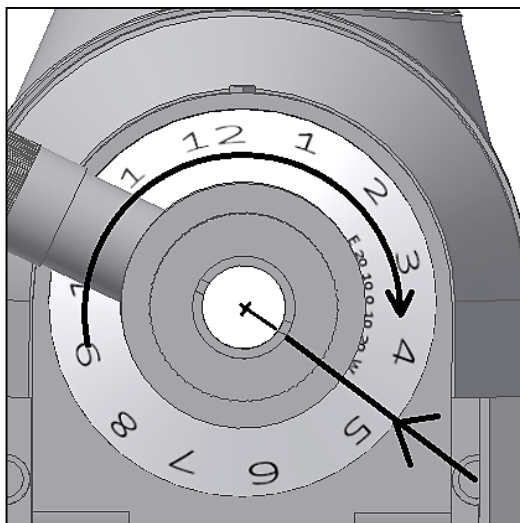


Figure 12. Rotate the month disc so that the vertical line on the reticule coincides with 1st May.

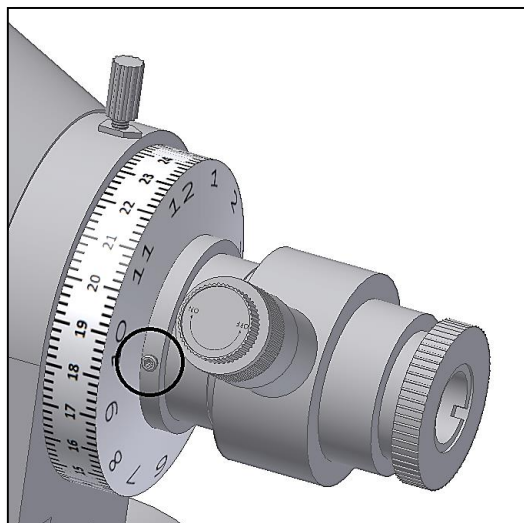


Figure 13. Release the hex screw to rotate the marking ring.

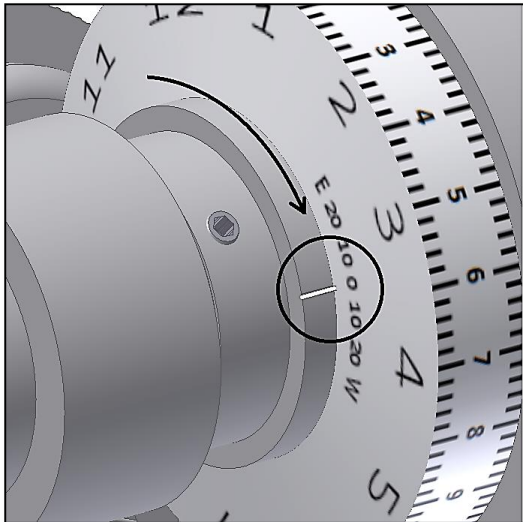


Figure 14. Rotate the mark ring.

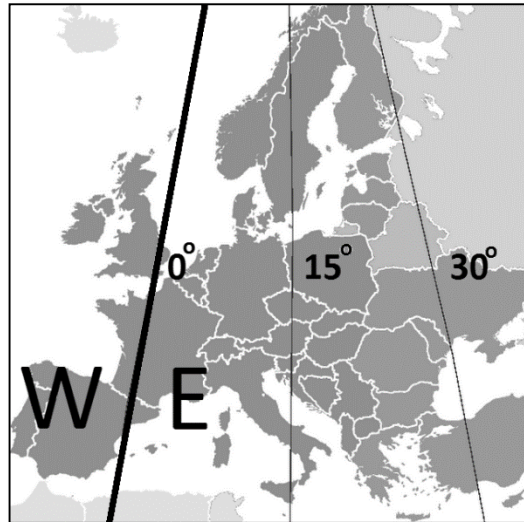


Figure 15. Determine Meridian hour.

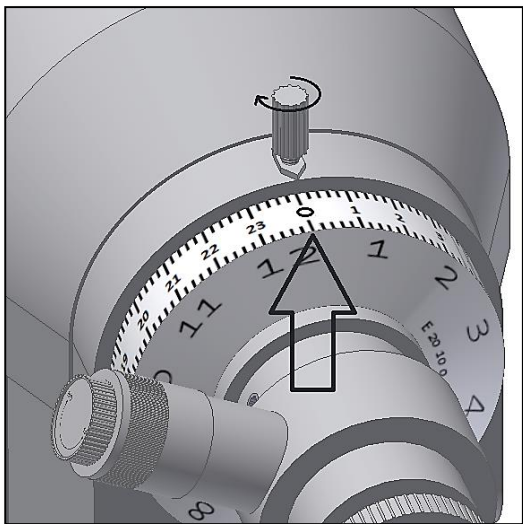


Figure 16. Lock hour ring.

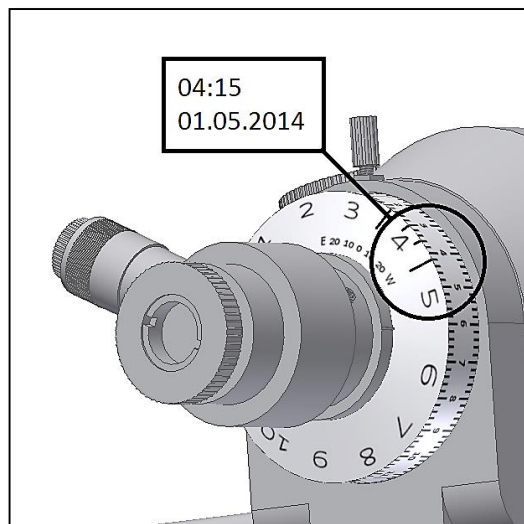


Figure 17. Rotate R.A. axis until local hour match.

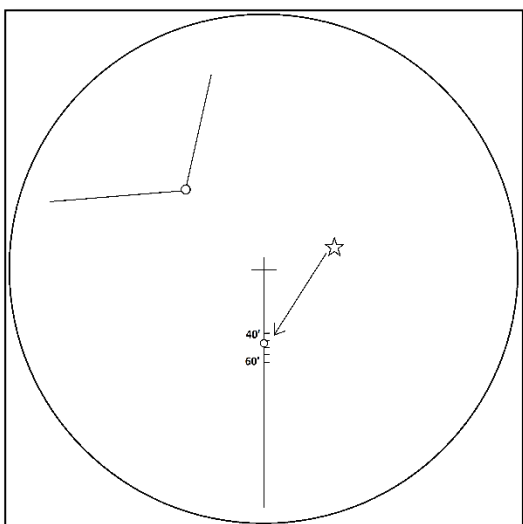


Figure 18. Use the mounts Azimuth and Altitude knobs to recentre Polaris.


SOLAR WARNING

Do not look at the Sun through the telescope!
 Concentrated Sun light may cause serious eye injury.
 Children should use only with adult supervision.

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