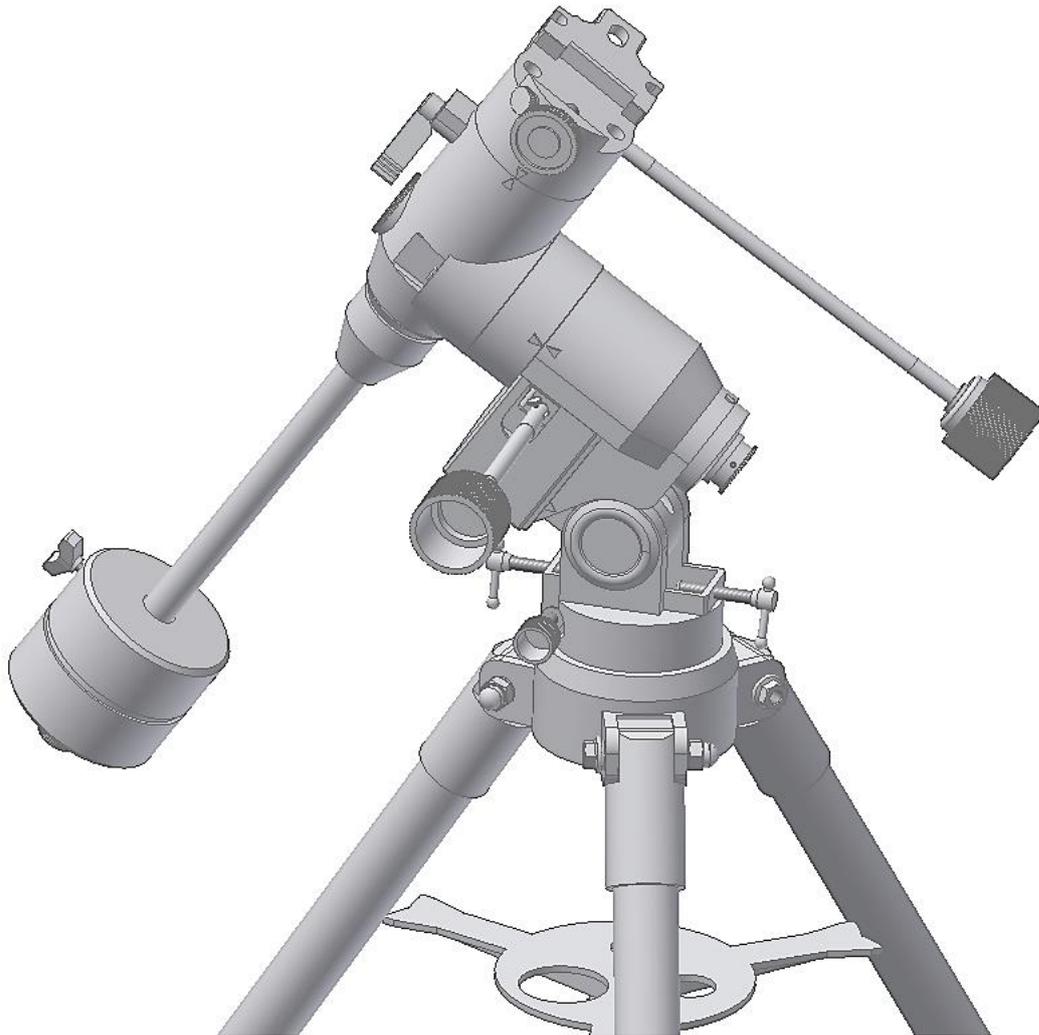


Instruction Manual

omegon



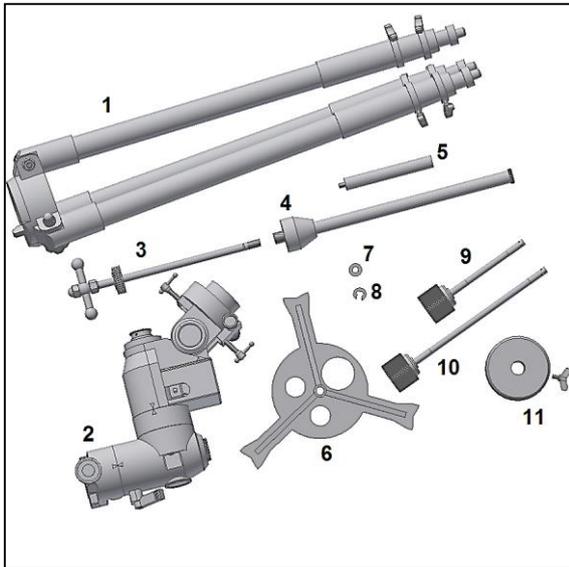
Omegon® EQ-500 Equatorial Mount

English version 10.2014 Rev A

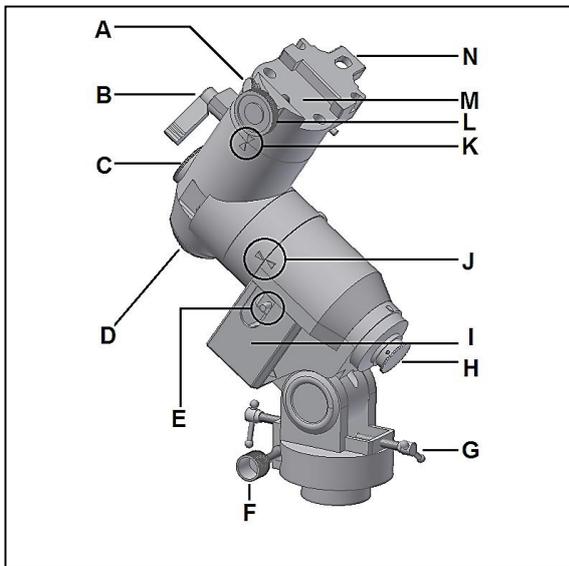
Instruction Manual

Omegon® EQ-500 Equatorial Mount

Congratulations on the purchase of the new Omegon® EQ-500 Equatorial Mount. This is an heavy platform for telescope tubes up to 10" in aperture and 15kg of weight. This heavy-duty equatorial mount is compatible with the Omegon® EQ-500 DUO motor set for precise celestial tracking and it also takes the Omegon® EQ-500 illuminated polar finder for precise polar alignment (both optional and not included). The mount is compatible with Vixen-style dovetails equipped optical tubes.



Parts List.



Mount head features (see page 6).

not rotate. The two hand-knobs (marked with a circle – Figure 12) should be released so that when placing the equatorial head on top of the tripod the protruding mount post (Figure 13). Use the tripod and tray shaft to tighten the equatorial head. Thread the counter-weight shaft to the mount as shown in Figure 14. Remove the counter-weight foot-saver (Figure 15) and slide in the counterweight as shown in figure 16. Thread back-in the foot saver at the end of the shaft. Place the manual hand control extensions to both mounts axis. The longer one should be placed to the Dec axis. The shorter one to the R.A. axis (Figure 17). Release the dovetail hand-knob (#L – Mount features) and place the optical tube (not supplied). Make sure to retighten the dovetail hand-knob and to use the safety thumbscrew (#A – Mount features) for additional tube protection. You are now ready to use the mount!

1. What is included?

1. Tripod;
2. Equatorial Head;
3. Tripod and tray shaft;
4. Counter-weight shaft;
5. Counter-weight shaft extender (optional);
6. Accessories tray;
7. Washer;
8. Locking washer;
9. Manual hand control Right Ascension (R.A.);
10. Manual and control Declination (Dec.);
11. Counterweight.

2. Getting started

Start by identifying the mount's components for ease assembly. The counter-weight shaft extension may not be included depending on the manufacture date. Adding this extension allows the use of heavier mount loads as the counter-weight can be pushed further away to the shaft's end (this is explained in detail in the next pages).

3. Assembly. Start by opening the tripod and extending the 3 tripod legs (Figure 1). Use the hand knobs to fix the extended legs. The tripod should look like in figure 2 with the legs fully extended and well tightened. The tripod and tray shaft (Figure 3) should be set to the mount. The following procedure is done only once. Insert the accessories tray as shown in figure 4. Flat surface should face up as shown. Insert the supplied washer (figure 5). Notice that the washer should be placed so that the larger diameter faces down (detail in the square). Insert this pre-assembled set in the tripod head central through hole (Figure 6 and Figure 7). Insert the locking washer on the shaft slot (Figure 8), this may require the help of a set of pliers. When in place it should look like Figure 9.

You will not need to repeat this procedure in the future. The equatorial head has two clutches on each axis (Figure 10). Releasing the clutches makes the mount free to rotate along both axis. Place the mount in an up-right position as shown in figure 11. Tighten the clutches so that mount does

The foot-saver is important to avoid the counterweight from slipping down and hitting the ground (check figure 15)!

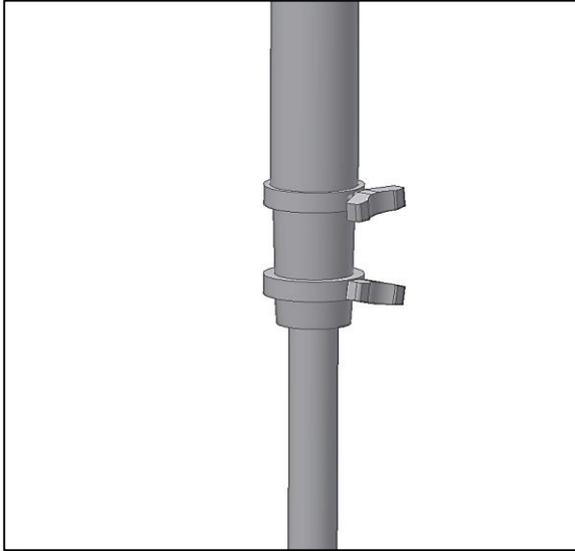


Figure 1. Extend the tripod's legs.



Figure 2. Tripod open legs fully extended.



Figure 3. Set the tripod and tray shaft.



Figure 4. Slide accessories tray.

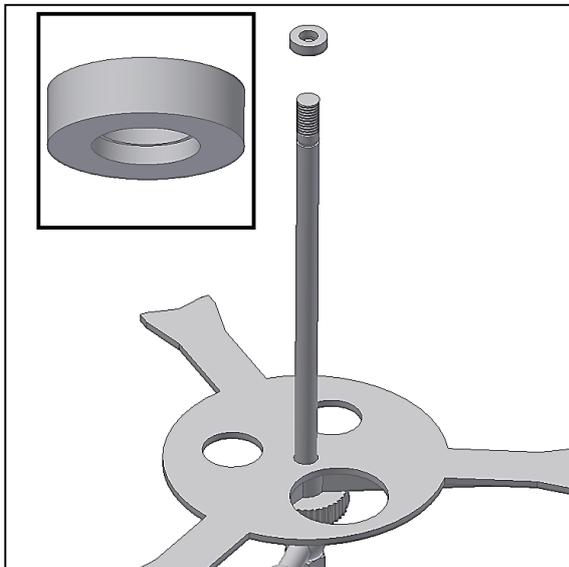


Figure 5. Slide supplied washer in the right direction.

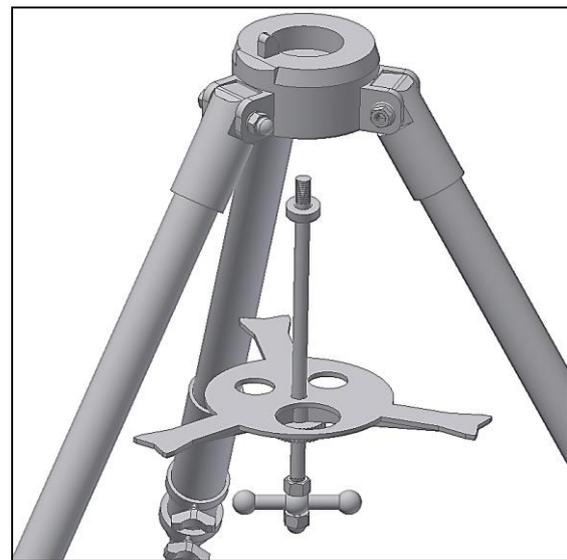


Figure 6. Insert pre-assembled set.

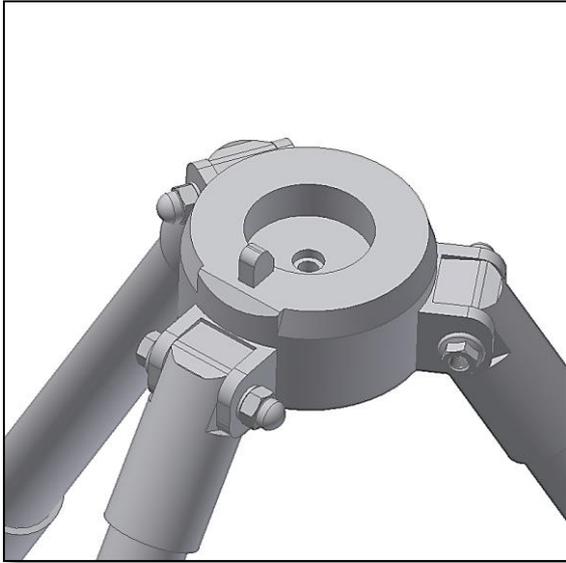


Figure 7. Tripod central hole and post.

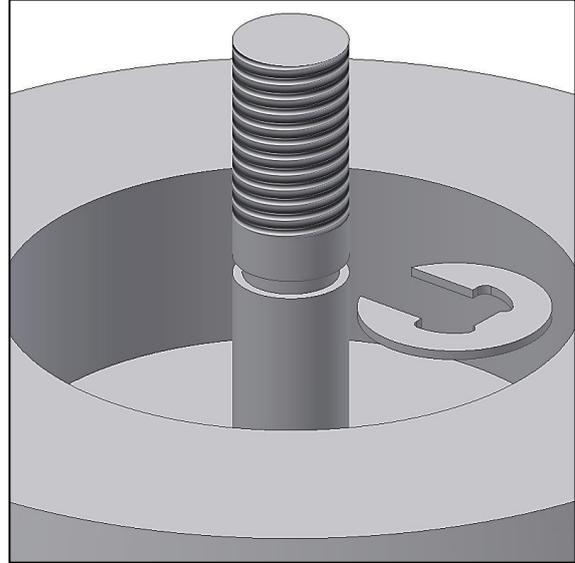


Figure 8. Insert locking washer in the slot.

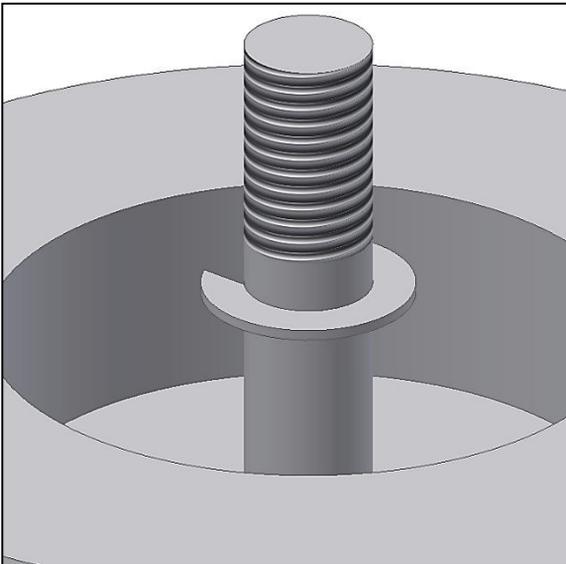


Figure 9. Use a set of pliers if required.

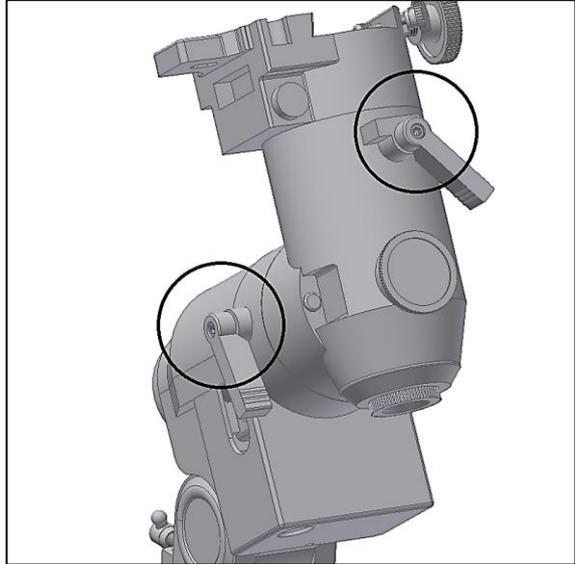


Figure 10. Clutch lockers.

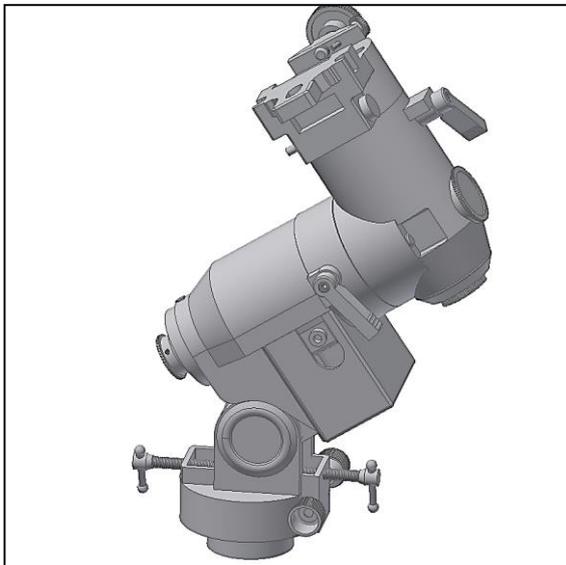


Figure 11. Mount in up-right position.

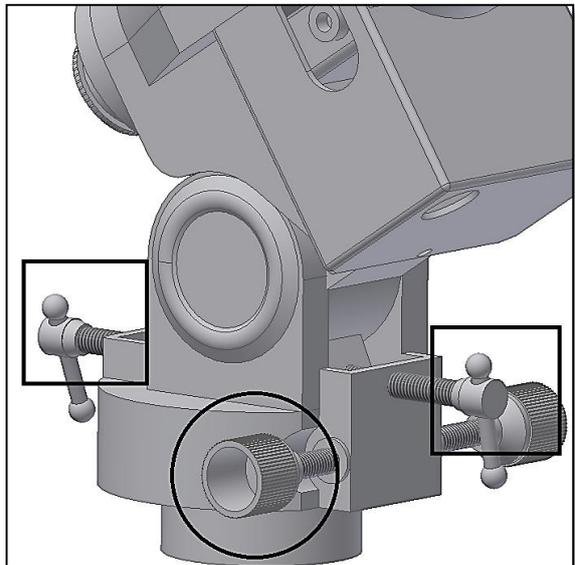


Figure 12. Altitude and azimuth hand-knobs.

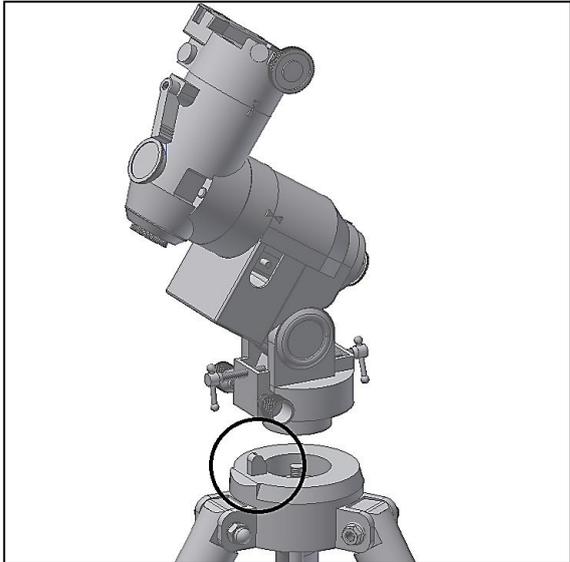


Figure 13. Align mount and tripod post.

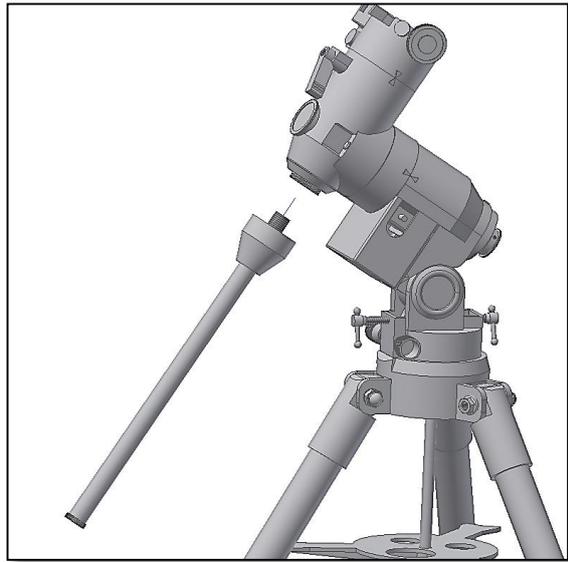


Figure 14. Thread Counter-weight shaft.

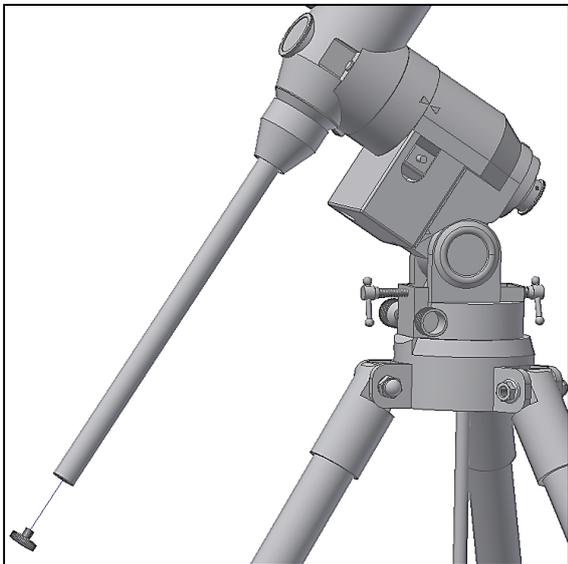


Figure 15. Remove foot saver to slide Counter-weight.

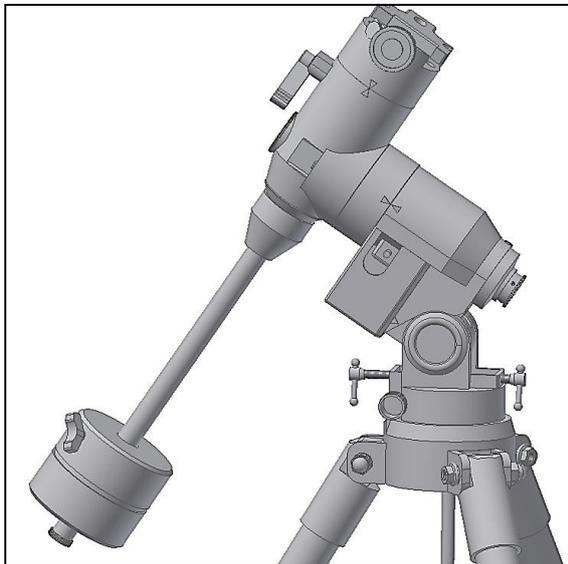


Figure 16. Slide in Counter-weight and thread foot-saver.

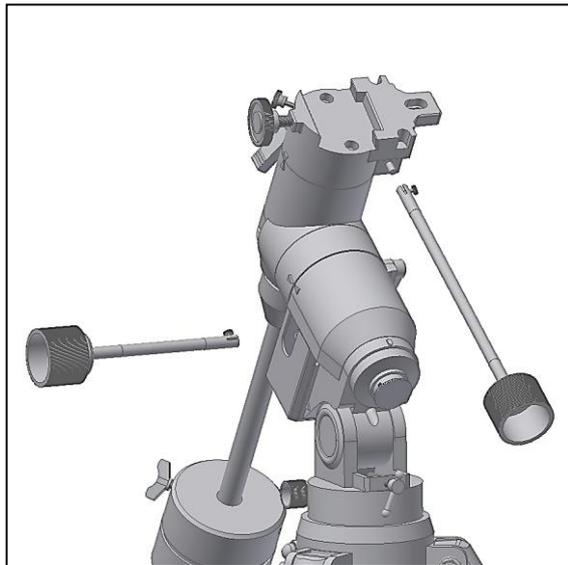


Figure 17. Place both hand controls.

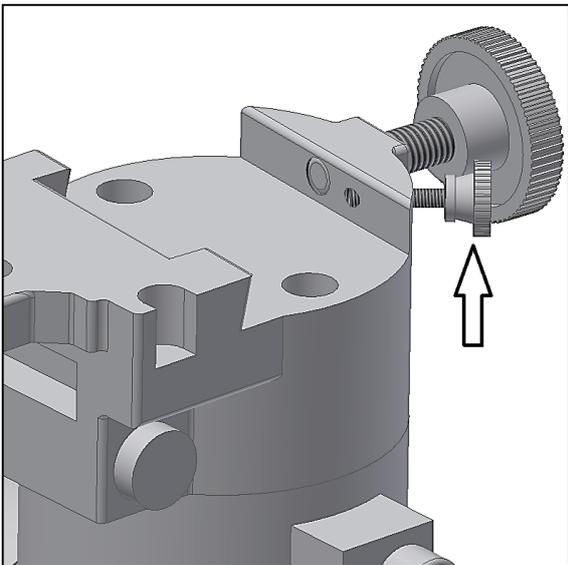


Figure 18. Use the safety locking thumbscrew.

3.1. Mount Features

A- Safety thumbscrew;
C- Plastic cap;
E- R.A. Hand control axis;
G- Altitude hand-knob;
I- Plastic case;
K- Dec. indexes;
M- Dovetail bed;

B- Dec. Clutch Locker (R.A. not shown);
D- Shaft axis;
F- Azimuth Hand-knob;
H- Plastic cap polar finder;
J- R.A. indexes;
L- Dovetail hand-knob;
N- Dec. motor connection.

3.2. Balancing the Optical tube (OTA). To reduce wear of the mount's worm-and-gear systems it is important to balance the mount. Balancing is very important and should be done every observing session. Start by balancing the R.A. axis (figure 19). Place the counterweight shaft in the horizontal position Dec. Release gently the R.A. clutch. The Dec. clutch should be locked. If the telescope tube or counterweight tips to one side it means the R.A. axis is out of balance. Slide the counter-weight on the counterweight shaft until it is balanced (does not tilt to any side). You can now place the counterweight shaft in the up-right position and lock the R.A. clutch. Proceed in the same way but now for the telescope's tube. Keep the counterweight shaft in the horizontal position and slightly release the Dec. clutch. Observe to which side the tube tilts (front or back). Release both tube's hand-knobs (on the tube's rings) so that the optical tube can slide easily. Slide the tube so that the tube is balanced (does not tilt). Tighten the tube rings and you have your telescope balanced. For advanced use refined balance is required.

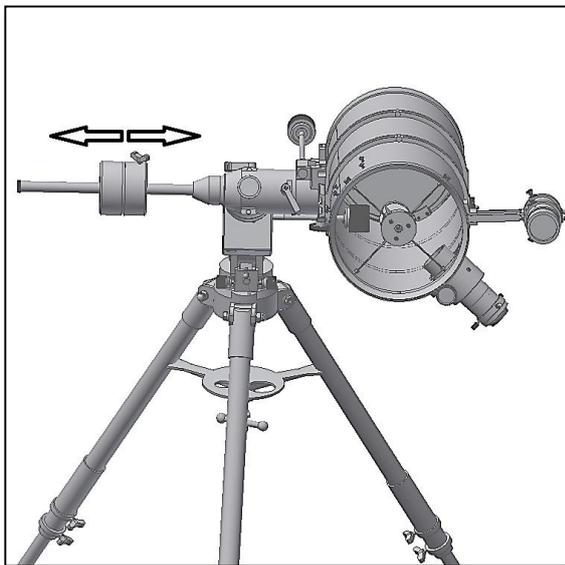


Figure 19. Balancing the R.A. axis.

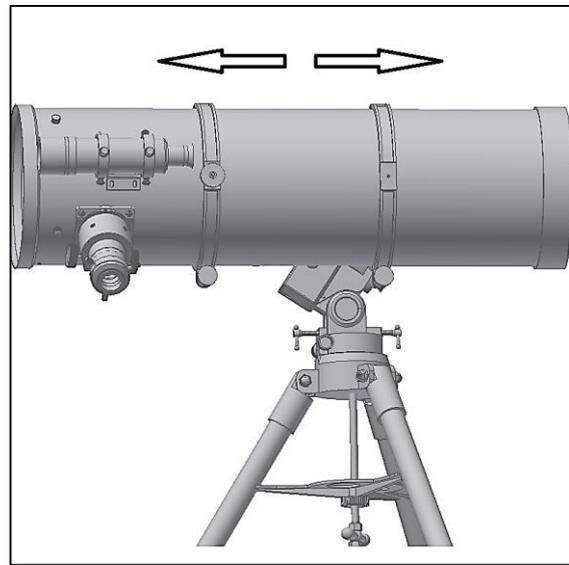


Figure 20. Balancing the telescope tube.

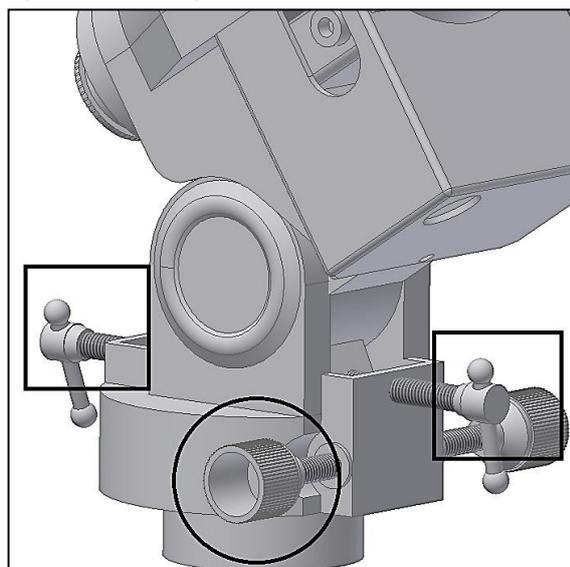


Figure 21. Correct use of the latitude and azimuth hand-knobs.

3.3. Adjusting Latitude and Azimuth

The mount has two sets of hand-knobs to adjust and fix latitude and azimuth. **It is important that these hand-knobs are only used for this purpose and not to centering an object in the field of view.** The mount post (circle - Figure 13) should be positioned so that it is aligned to North. The azimuth hand knobs are used to make fine adjustment if necessary, they are also used to fix the position. For the latitude the other set of hand-knobs is use. Release on and tighten the other until the required latitude is reached. Tighten both to lock in position. The mount should now be roughly aligned with polar axis. Remove both polar plastic caps (#C and #I – Mount Features) . Peek at the back of the mount through the central polar axis, the Polar Star should be in the field of view. For polar alignment refinement using a polar finder is recommended. Precise polar alignment is only necessary for deep sky astrophotography purpose and is not required for visual or planetary astrophotography (more detailed instructions are included in a separate instruction manual for the dedicated EQ-500 polar finder).

3.4. How to use the mount?

If the mount is correctly polar aligned it is only necessary to release the clutches in R.A. and Dec. so that the optical tube is free to point to any direction. Point to an object (we recommend that you do this during the day), and lock both clutches. Use the two hand controls (9# and #10 from parts list) for fine adjustments. They only work if the clutches are locked. Once the object is centered (a star for example) it will only be necessary to use the R.A. hand control to track the object. Once in a while the Dec. control may also be needed to center the object into the field of view.

The same principle applies when using the motorization set. Usually a motor is working continuously to track an object while the other is stopped and only is activated if the user needs to center that object. In that case pressing one of the Dec. button on the motor hand controller is enough to adjust object in the field of view. Sometimes it is also necessary to proceed with some corrections in the R.A. axis. If frequent corrections are necessary in both axis (to track a star) it means that the mount is poorly polar aligned.

3.5. Suggested add-ons to your EQ-500 mount

The EQ-500 is a powerful telescope platform as it can be upgraded with a polar scope for precision polar alignment and a motorization set. The motorization set allows precise control of both R.A. and Dec. axis and it can also be used for wide field deep-sky astrophotography or high resolution planetary imaging. The polar finder is used for fine polar alignment.

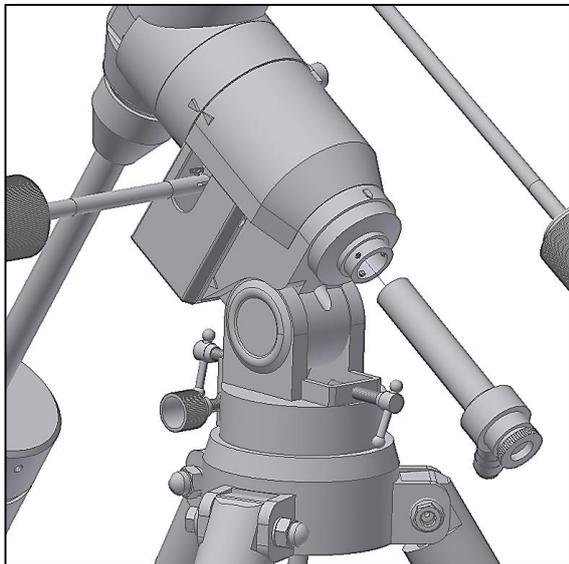


Figure 22. Suggested optional Polar finder shown.

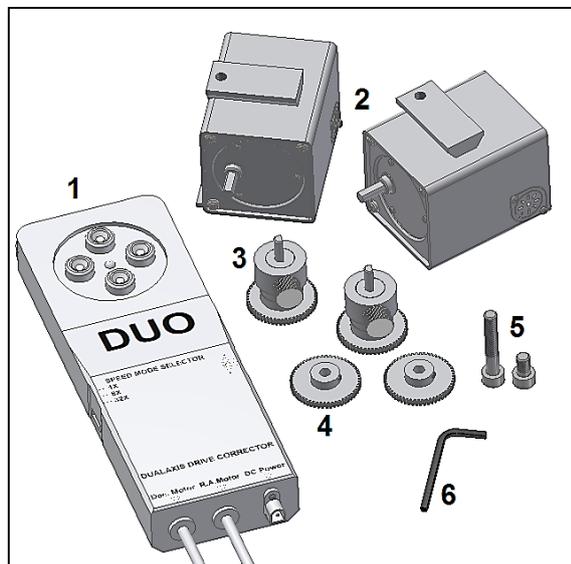


Figure 23. Suggested optional Duo motor control shown.



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.

Questions? Visit our website www.astrosshop.eu and drop us a line* nimax GmbH Otto-Lilienthal-Str. 9 D-86899 Landsberg am Lech