

Instructions Manual

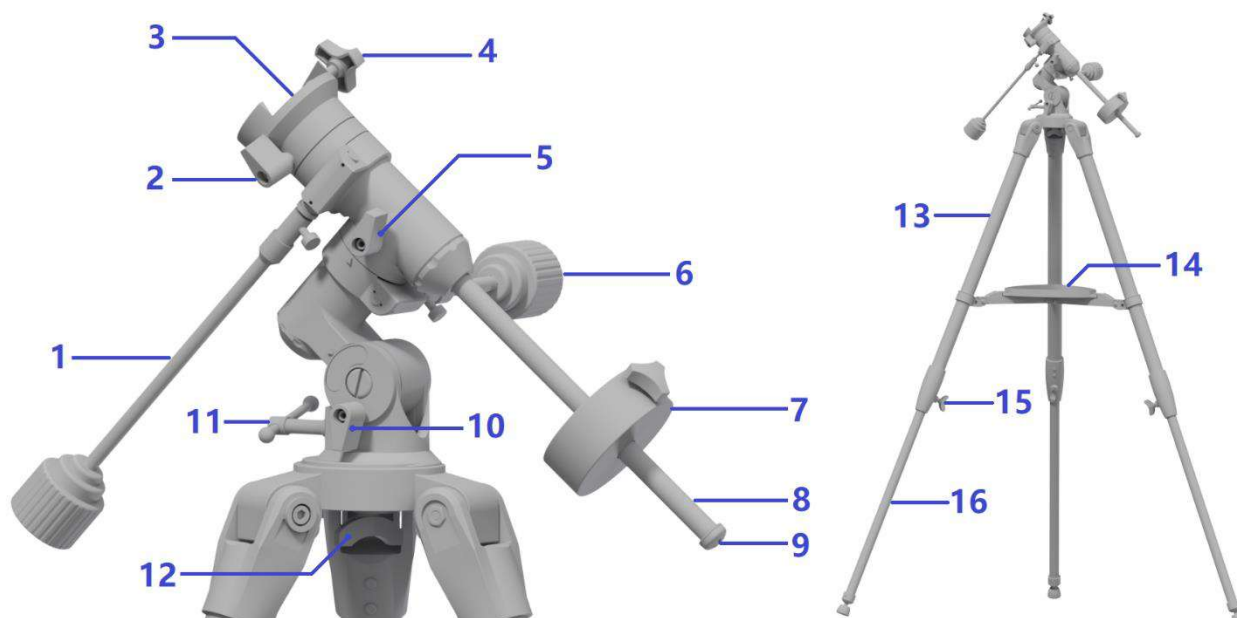
omegon



Omegon® Horizon EQ-1 Neo

English version 12.2025 Rev A Art. Nr 87245

Congratulations on the purchase of the new Omegon® Horizon EQ-1 Neo telescope mount. This telescope mount, with its all-metal mount construction, is ideal astronomical observation tool. Paired with its stainless steel tripod, this stable observation platform, for the most demanding users, offers precise fine adjustment controls on both axis. Furthermore, the big clutch levers, allow for quick pointing by hand and then using the fine hand controls to fine-centering the object in the centre of the field of view.

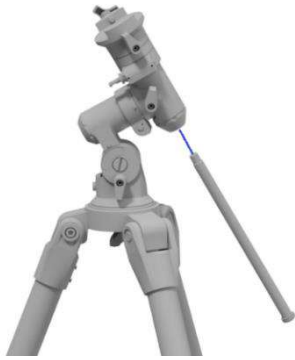


Mount parts

- | | |
|---|-------------------------------------|
| 1 - Fine adjustment hand control (long); | 9 - Counter-weight stopper; |
| 2 - Dec. clutch lever; | 10 - Latitude locking lever; |
| 3 - Dovetail holder; | 11 - Latitude adjustment hand knob; |
| 4 - Dovetail locking knob; | 12 - Mount to tripod locking knob; |
| 5 - R.A. clutch lever; | 13 - Top leg (tripod); |
| 6 - Fine adjustment hand control (short); | 14 - Accessory tray; |
| 7 - Counter-weight; | 15 - Fixing hand screw (tripod); |
| 8 - Counter-weight shaft; | 16 - Bottom leg (tripod). |

1. Setting up the mount to the tripod.





#8



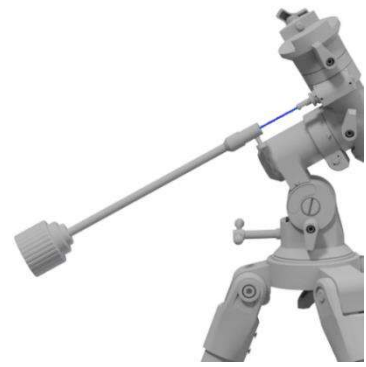
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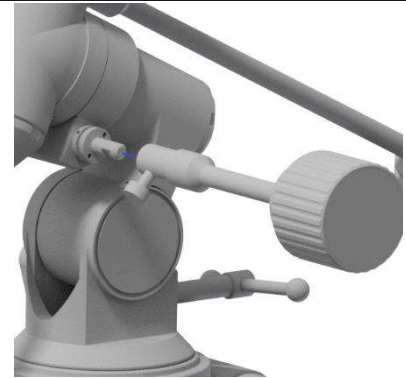
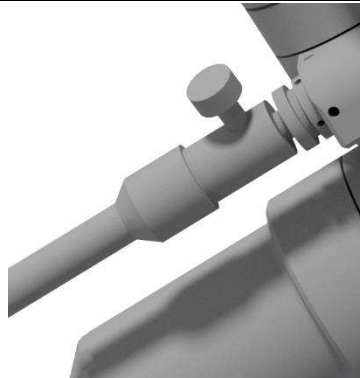
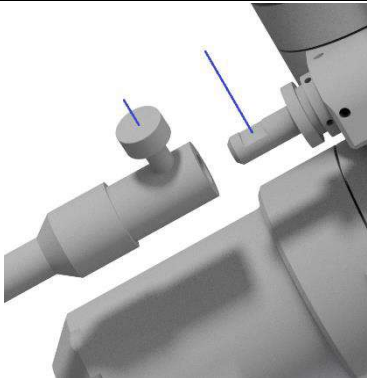
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#1



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#6



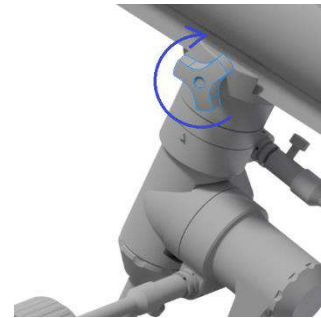
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1. Getting Started.

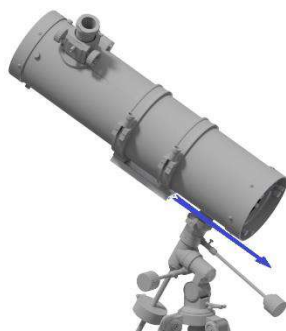
1.1. Installing the optical tube assembly (OTA) – refractor and reflector.



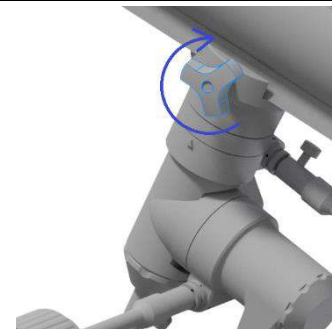
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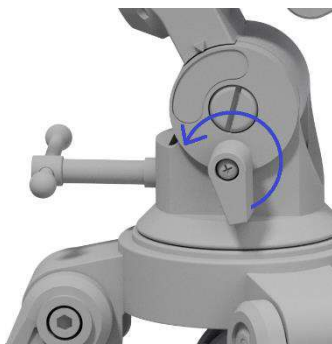


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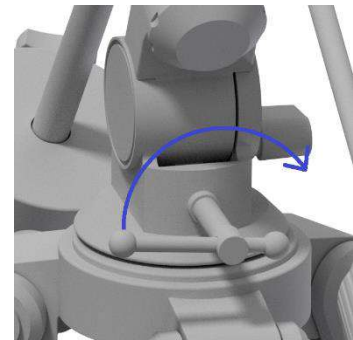
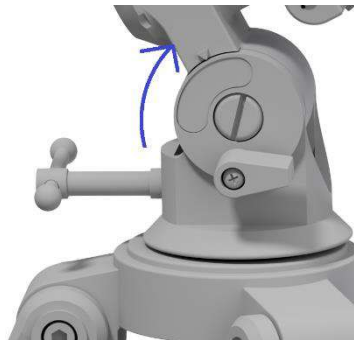


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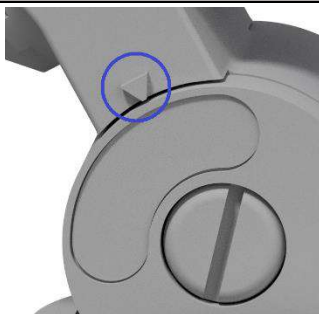
1.2. Adjusting the mount the local latitude.



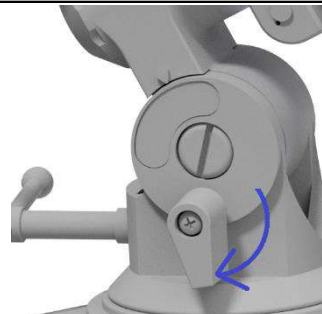
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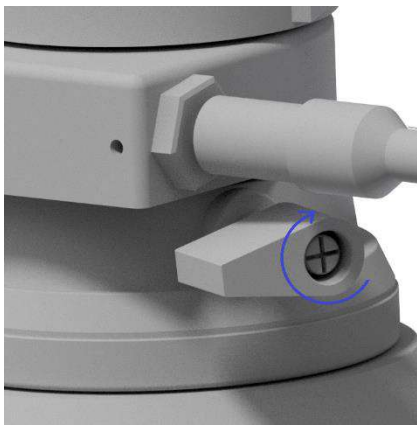


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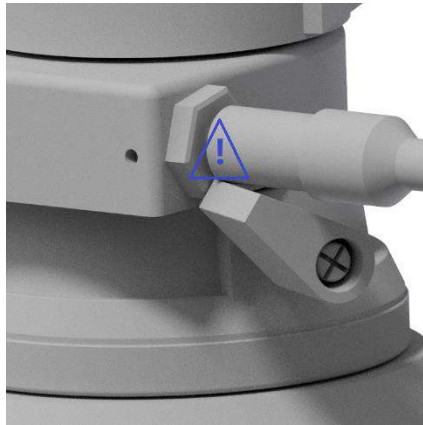


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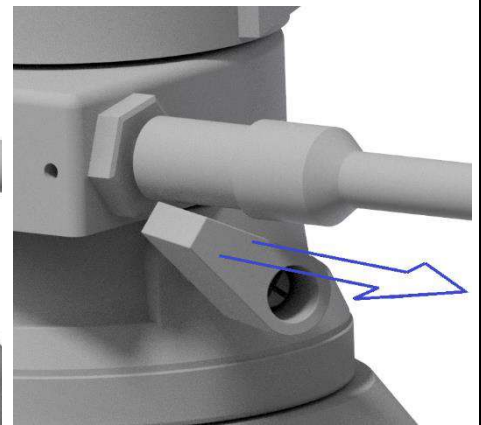
2. Lever adjustment.



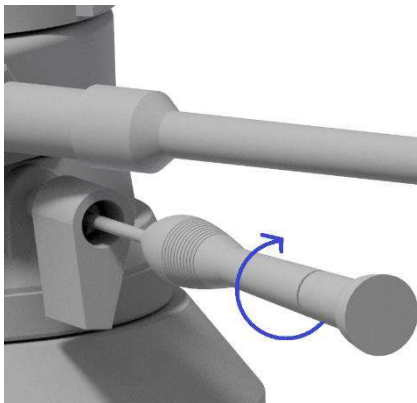
Engage the azimuth clutch.



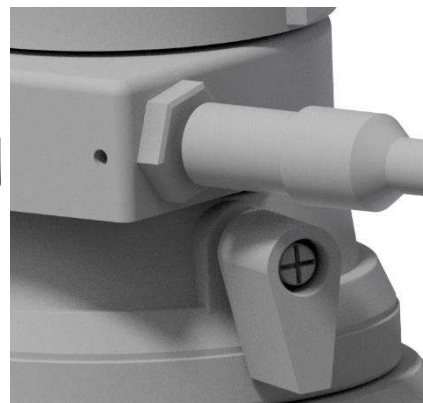
If the clutch hits some part of the mount it means that it needs to be adjusted.



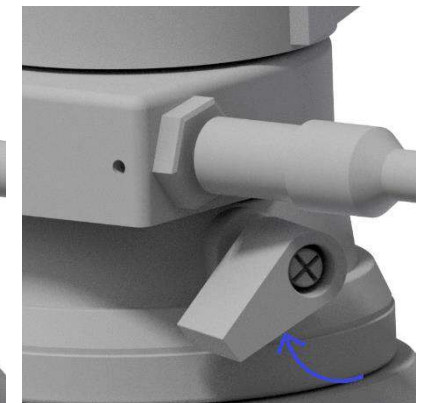
Pull-out the plastic handle.



While pulled-out, use a screwdriver (Philips-type) and tighten the inner screw.



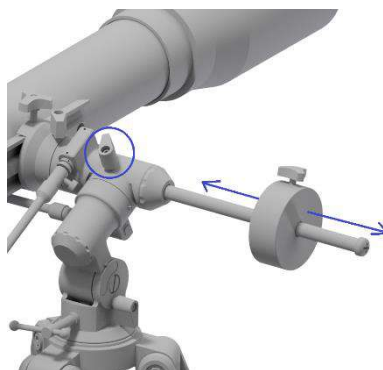
Release the plastic handle in a vertical position as shown.



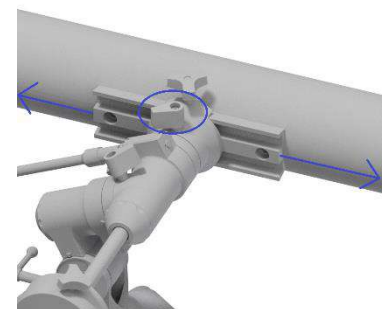
Now, when engaging the clutch, the plastic handle will only move a few degrees and will not hit any part.

3. OTA balancing.

Balancing the OTA to the mount is important to ensure that the mount operates correctly. Proceed by releasing the R.A. and Dec. clutch, #5 and #2 respectively so that the mount and telescope look as shown. Slightly tighten both clutches so that the mount remains in a horizontal position, like shown.



#5 & #7



#2 & OTA

3.1. R.A. balancing.

Release the R.A. Clutch #5 and observe if there is a tilt to the OTA's or the Counterweight's side. Balance by sliding the Counterweight back and forth. Re-lock the R.A. clutch.

3.2. Dec. balancing. Release the Dec. Clutch #2 and observe if the OTA tilts to the front or the back. Release the Dovetail locking knob #4. Slide the OTA on the Dovetail holder #3 so that the OTA is balanced. Proceed to re-lock the Dec. Clutch #2.

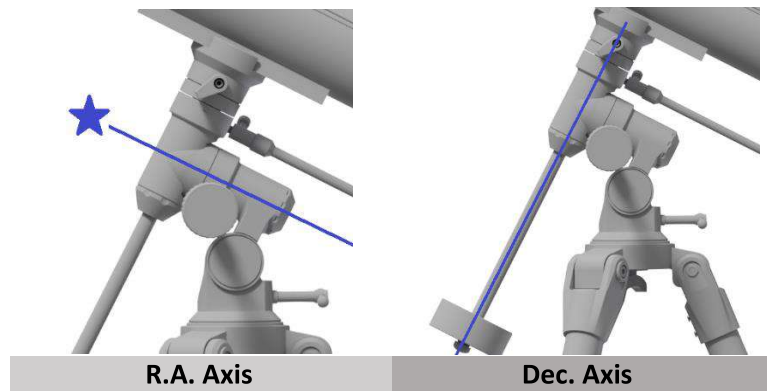
4. How to use the equatorial mount.

The equatorial mount is a powerful tool for astronomical observation. The main purpose of an equatorial mount is to point a telescope to an object. There are two axis in the equatorial mount. A R.A. axis and a Dec. axis. The OTA sits on the Dec axis.

4.1. R.A. Axis. The R.A. (short for Right Ascension), as shown in the figure, should point north, to Polaris (symbol star in the figure). Tracking (see what this is below) is achieved using the R.A. axis.

4.2. Dec. Axis. The second axis is the Dec. (Declination) axis. It is only used as a second axis to point to an object.

4.3. What is tracking? Stars locations seem to drift, slowly but surely, in the night sky. This is caused by the Earth's rotation. Every 24 hours (a day) the Earth completes a full turn on it-self. This phenomenon is what causes the apparent star drift in the night sky. This means that, when observing through a telescope, the stars will "move away" from the field of view after a few seconds. That is the action of the Earth's rotation. This is even more evident when using high power eyepieces. Stars seem to drift away, quite easily, from the field of view. Use the Dec and R.A. handles to precise point the telescope. Make sure the axis are securely locked (using the clutches). To keep a star in the centre of the field of view tracking is required. Tracking can be done manually.

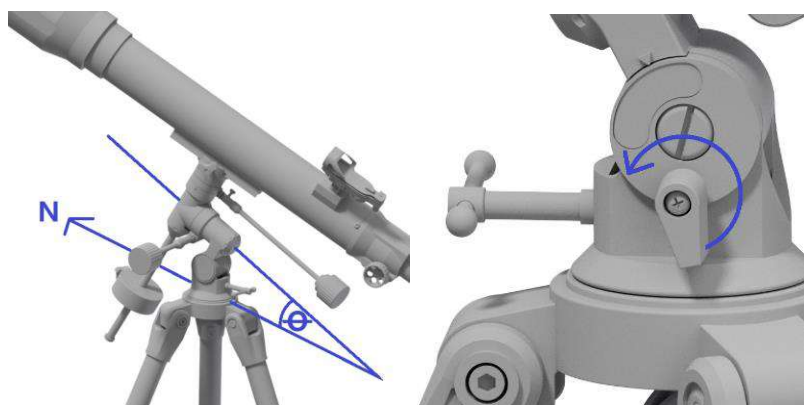


Manual tracking can be done using the R.A. hand control #6.

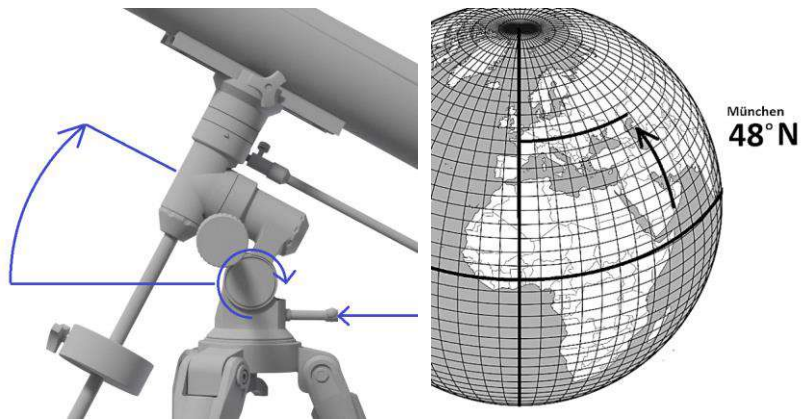
The hand controls allow corrections to be made in each axis. However this is not the recommend procedure to track an object. The mount should be placed in station i.e. aligned in such a way that only the R.A. axis is required to turn to track a star.

5. Setting the mount in station.

Point the telescope's R.A. axis to geographical North (N). Release the altitude break for inclination adjustment. Rotate the latitude adjustment so that the inclination of the mount is the same as the latitude of observers. For an observer in Munich the latitude is 48 degrees. The inclination angle (θ) should be approximately 48 degrees. Make sure to re-tighten the altitude break. Now that the



mount is pointing north and has the observer's location latitude, your mount is set on station. From now on the mount and tripod remain in this fixed positions and should not be moved during observation. The two R.A. and Dec. axis can be used to position and point the telescope to any part of the sky.



**The altitude/latitude adjustment should NOT be used when observing.
Continuous use can cause wear or even break the knob.**

5. Know the mounts limits.

The mount is a mechanical equipment and should be used carefully. The EQ-1 Neo mount is capable of carrying OTA up to 3.5kg, when perfectly balanced. This includes the OTA and all its accessories, including eyepiece, finderscope etc...

Balance is crucial for not wearing the delicate worm wheel set on each of the mount's axis. If the mount is unbalanced or the weight is poorly distributed, one will feel that the movements on each axis (R.A. and Dec.) will become difficult or coarse. If this happens, action should be taken immediately. Verify if the OTA meet the maximum weight limited, as described, or if the OTA is balanced.

Another symptom of mount overload is when engaging the clutches, to use the fine adjustment hand controls, there is slippage of the OTA. This can be dangerous as the OTA can eventually slip and hit the tripod or even the floor.

Please do not exceed the mount's maximum carrying capacity of 3.5kg!

End.