

EXPLORE[®]
SCIENTIFIC



ILLUMINATED POLAR FINDER FOR EXOS II

INSTRUCTION MANUAL

ITEM: PFEXOS2



SAFETY INFORMATION



SUN WARNING

DO NOT USE a telescope or any accompanying finder scope to look at or near the Sun! Even momentary visual contact with the Sun's light rays can instantly cause irreversible damage to your eye(s). Eye damage can be painless, so there is no warning to the observer that damage has occurred until it is too late.

Take extra care when using the telescope or a finder scope during daylight hours, and do not point either at or near the Sun. Do not look through either when you are moving the instruments during the daytime. Never allow anyone to use the telescope or a finder scope during the daytime without warning them of the hazards of aiming either at or near the Sun. Make sure that they are adequately trained on the use of these instruments before allowing them to start observing. Children should always have informed and trained adult supervision while observing.



Parts Overview

1. Polar alignment viewfinder reticle and LED knob (EXOS-II only)
2. Rotary knob for illumination
3. Polar finder eyepiece

Rotate the knob to switch to ON or OFF the LED that illuminates the reticle within the polar alignment finder. Be sure to turn off the LED when finished with the polar viewfinder.

Illuminated Polar Alignment Viewfinder

Normally, a rough alignment with the celestial pole is sufficient for visual purposes. However, for those observers who need to meet the more demanding requirements of astrophotography, this polar alignment viewfinder allows the telescope mount to be more precisely aligned with true north.

How to install and use the Illuminated Polar Alignment Viewfinder

Installing the Polar Alignment Viewfinder:

1. Before installing the viewfinder, point it at a bright surface (**WARNING: Do not point it at the Sun!**). Look through the viewfinder and turn its eyepiece until the scaled line with the center cross on the reticle is in focus. Carefully set the viewfinder aside.
2. Remove the caps on both ends of the polar alignment tunnel that goes through the mount base. On the mount, calibrate the month circle around the opening for the polar alignment viewfinder to match your current month.
3. On the month circle, there's a second scale with the following markings: E 20 10 0 10 20 W. When you put the polar viewfinder into the opening, align the white mark on the finder with the "0" on this scale. Secure the viewfinder in place by tightening the three set screws with a 564 hex wrench.

Aligning the viewfinder's optical axis to the RA axis:

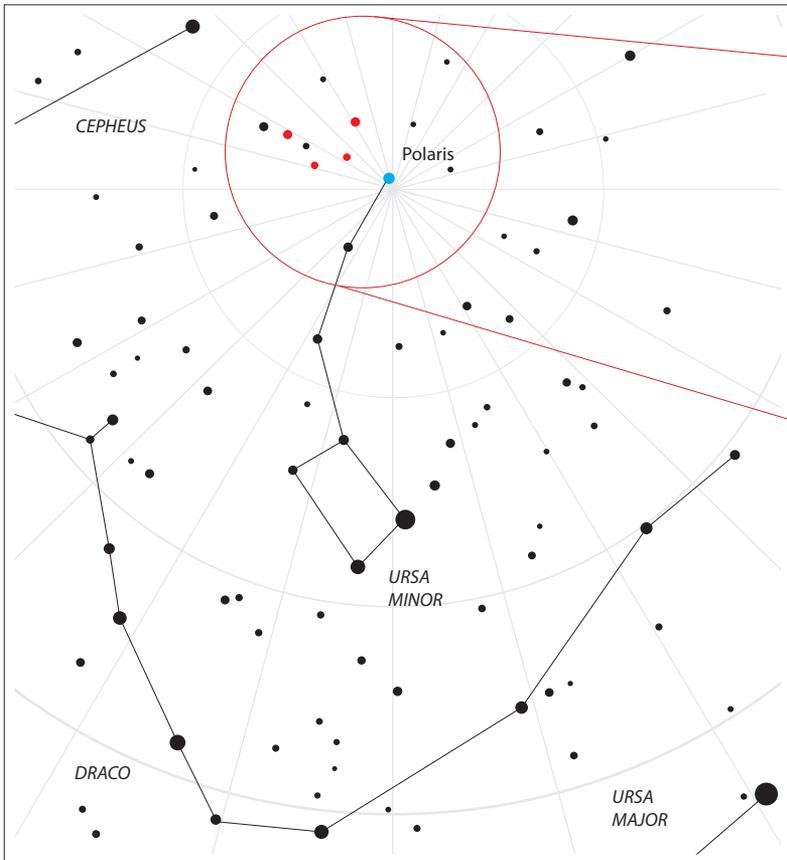
1. Starting at the polar home position, loosed the DEC lock, turn the DEC axis by 90° and re-engage the DEC lock. In this position, you should now be able to see through the polar alignment viewfinder.
2. Point the viewfinder at a distinct terrestrial object like a telephone pole and line it up with the center cross in the viewfinder's reticle.
3. Ascertain whether the object moves out of the center cross when the mount is rotated around its DEC axis.
4. If this is the case, you will need to adjust the positioning of the viewfinder by loosening/tightening the set screws until the offset distance of the object is corrected by half. Adjusting the hex screws is a trial and error process. You likely will have to make several adjustments to all three hex screws to get the positioning correct. Continue to rotate the mount by 90° until the object stays in the center cross every time.

Using the Polar Viewfinder:

1. Set the polar home position. Loosen the DEC lock, turn the DEC axis by 90° and re-engage the lock.
2. Loosen the RA lock.
3. Remove the dust caps.
4. If not done yet, remove the isolation pad between the batteries in order to use the viewfinder's illuminated reticle.
5. Turn the illuminator switch clockwise to a comfortable brightness and look through the viewfinder. If necessary, focus the viewfinder until the reticle and stars appear sharp.
6. In the following step 7, use the latitude adjustment screws and the azimuth adjustment screws to do the necessary fine adjustments.

Observers in the Northern Hemisphere

- N-7 a) Determine the rough longitude of your observing site (example: Munich is 12° E). Now determine the longitude of the time meridian according to your local time. For the central European time, this is 15° E (do not use daylight savings time). Calculate the difference between both longitudes; in our example with Munich, it is 3° .
- N-7 b) Now set the secondary scale at your month ring (E 20 10...) to this difference. If your observing site is east of the time meridian, turn to "E", if it is west of the meridian, turn to "W". This setting has only to be changed when the observing site changes by more than 2-3°.
- N-7 c) Loosen the RA setting circle locking screw, turn the setting circle to "0" and tighten the screw again. In normal operation, this screw should be loose!
- N-7 d) Now loosen the RA lock and turn the RA axis until the actual date at the month match with the local time.
- N-7 e) Now adjust the mount using the azimuth and latitude knobs until Polaris fits into the small circle between $40'$ and $60'$.
- N-7 f) Tighten the RA wedging again and set the telescope to its polar home position.



Polaris 
 The Four Stars 

Observers in the Southern Hemisphere

- S-7 a) Look at the trapezoid association in the polar viewfinder's reticle. They represent the configuration of Sigma, Tau, Chi and Ypsilon Octantis in the night sky. Turn the RA axis until the "real" stars roughly over the edge points in the trapezoid figure.
- S-7 b) Both trapezoids may still be parallel shifted. Adjust this offset by using the latitude and azimuth fine controls. An additional RA correction may be necessary.
- S-7 c) Tighten the RA wedging again and set the telescope to its polar home position.

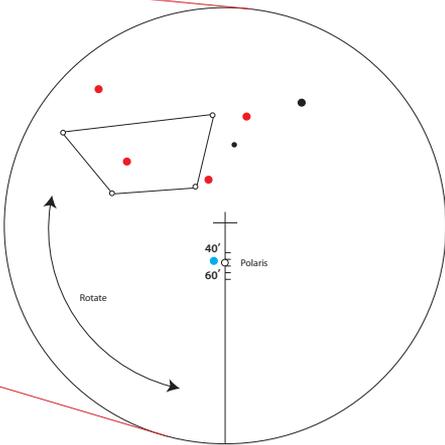
NOTE:

Not all settings within the month/hour scale are possible because a german equatorial mount is limited within its movements.

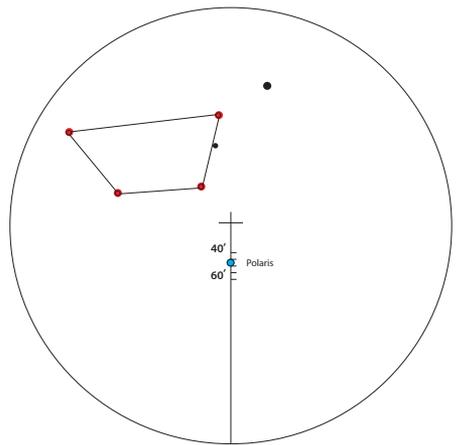
NOTE:

Don't forget to switch off the reticle illumination after use.

Not Aligned



Aligned



The view inside the polar alignment viewfinder reticle (the four stars show an association near the southern celestial pole).

Image on polar viewfinder will be inverted.



NOTES

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