

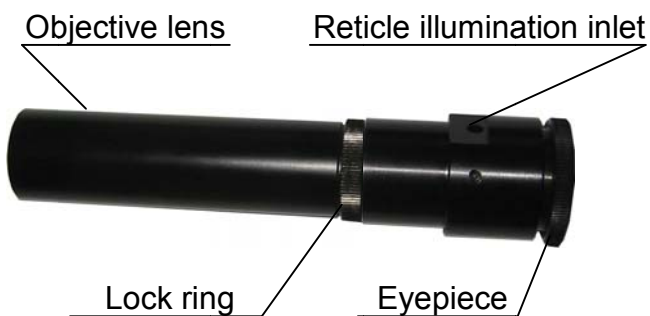
## Instruction for ZEQ25 Polar Scope Focusing Adjustment and Polar Axis Alignment

February 2014

Polar Scope is a very delicate optical component, especial its reticle which is made from a glass and mounted on a plastic fitting. If your polar scope axis needs to be re-aligned to the RA axis of your EQ mount, please do not use excess force onto the reticle adjustment screws.

**Tool needed:** 2mm and 5mm Allen wrench

**Polar Scope Parts Name:**



- Eyepiece: Adjustable, for reticle focusing
- Objective lens: Adjustable, for object focusing
- Locking ring: Lock the objective lens tube
- Reticle illumination inlet: Threaded hole for LED illuminator

### How to Adjust Polar Scope Focuser:

Adjust the Eyepiece to get a clear picture of the reticle. If you can't see a distant object clearly, you need to adjust the objective lens to match your eye sight.

1. Remove DEC axle Cover.



2. Unthread the illuminating LED with its plastic washer



3. Loosen the set screw that holds the polar scope and remove it from RA axle.



4. Point the polar scope to a far distant object. Adjust the Objective Lens by turning the tube to get a clear image. Tune the Lock Ring to secure it.

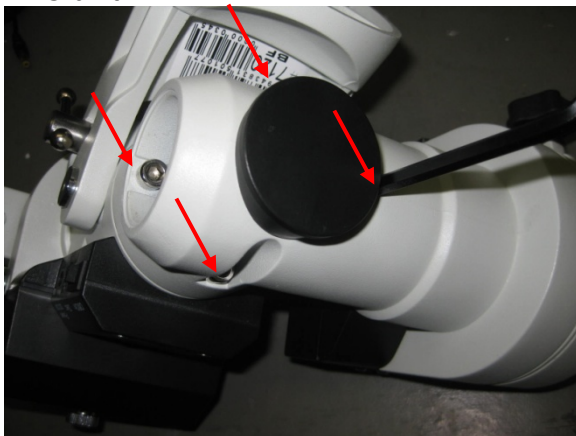
- Reinsert the polar scope back to the mount. Align the scope to original position and tighten the set screw. If 12 o'clock mark is not on top, you may rotate the polar scope to adjust it.

### How to align Polar Scope optical axis to mount RA axis:

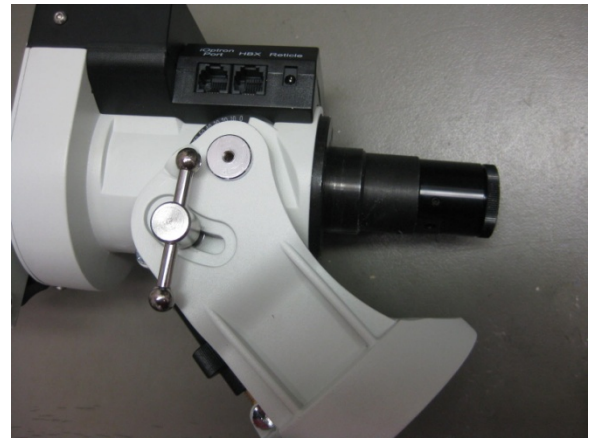
If you are suspecting that the polar scope may be misaligned, you may check it by putting a star in the center of the polar scope reticle cross hairs and rotating mount's RA axis. If the star stays in the center of cross hairs, the polar scope is aligned to the mount's RA axis.

In the event the polar scope optical axis needs to be adjusted, you can do this procedure at night while pointing at Polaris, or any bright star. However, it is probably easier to do it during the daytime using a distant point, such as a flag pole or top of a building a couple of hundred yards away, as your target. Please remove the telescope, the counterweights and counterweight shaft from the mount. Aim the mount to the object. Use the Altitude Adjustment Knob and Azimuth Adjustment Knob to center the object.

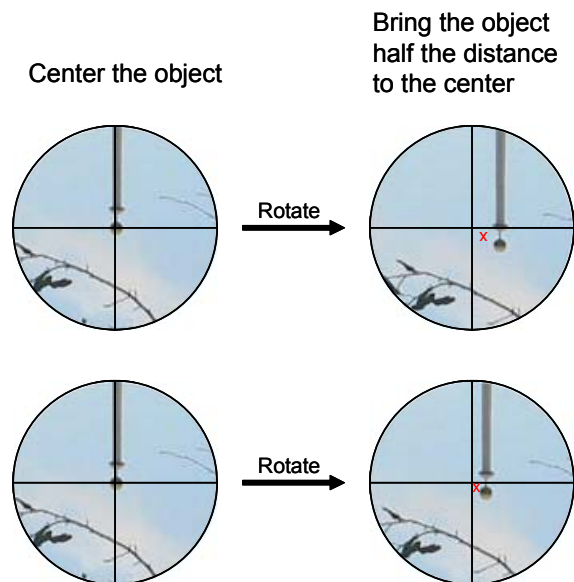
- Remove DEC axle cover and polar scope LED.
- Using a 5mm hex key to release four hex head screws that hold the DEC unit in place. One screw needs be accessed through the hole on DEC unit.



- After fully releasing these screws, gently pull the DEC unit away from the RA axle to separate it from the mount. The polar scope will be fully exposed.



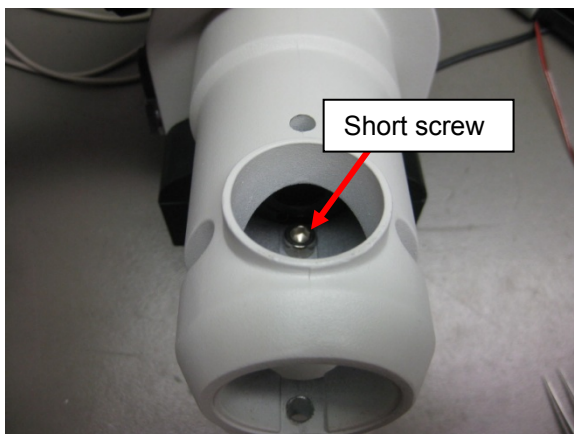
- Mount the mount onto the tripod.
- Align the polar scope following the procedures below:



- Release RA Gear Switch and rotate the RA unit to right side. Lock the Gear Switch. Adjust azimuth and latitude adjustment knobs to center the aligning object in the polar scope.
- Release the RA Gear Switch again. Rotate the mount  $180^\circ$  to bring the RA unit to the left side. Relock the RA Gear Switch. Bring the object half the distance to the center by adjusting the reticle adjustment set screws using a 2mm hex key. Keep in mind that the image in the finder is inverted. Loose one screw first, then tighten the other screw(s). Only loose/tighten one screw at a time and a few turns each time to avoid the reticle totally lost its position. It may take a few minutes to familiarize yourself with the

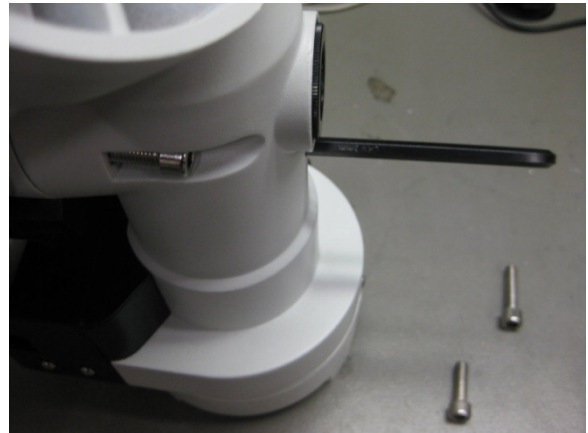
screws that move the polar scope in the appropriate direction. **PLEASE do not over tighten the setting screws.**

- c. Adjust azimuth and latitude adjustment knobs to center the aligning object in the polar scope.
  - d. Release the RA Gear Switch and rotate the mount 180° to bring the RA unit back to the right side. If you are lucky enough, the object will stay in center of the polar scope. Otherwise, repeat Steps 2 and 3 to further move the object to the center.
  - e. After few times, the object will stay in center when the mount is flipped from right to left.
6. Now put the DEC unit back onto the RA axle. Two of the four hex screws are longer than the other two. Insert one short one into the TOP hole inside the DEC unit.



7. Put the DEC unit back onto the RA axle, with screw holes aligned to the threads on the RA axle. Gently thread the top screw into the threaded hole. It should feel very smooth without any difficulty. Then put two longer screws into the side holes and gently threaded

it into. Install the last short screw. Then evenly tighten four screws.



8. Install the polar scope LED with washer and DEC axle cover.

Internal use only. Contact iOptron at [support@ioptron.com](mailto:support@ioptron.com) if you have any question.  
iOptron is not responsible for any damage occurred during the adjustment.