

Polar Alignment using iOptron AccuAlign™ Optical Polar Scope

(Updated 1/1/2025)

If the mount equipped with an AccuAlign™ optical polar scope, you can use the Quick Polar Alignment procedure to perform the polar alignment. One of the unique features of an iOptron mount is that the polar scope can be used at anytime because it is not blocked by the DEC axle as in other equatorial mounts. This makes it possible to adjust the polar alignment while the mount is tracking.

As indicated in Figure 1, the Polar Scope reticle has been divided into 12 hours along the angular direction with 10-minute ticks. There are 6 concentric circles in 2 groups of 3 marked from 36' to 44' and 60' to 70', respectively. The 36' to 44' concentric circles are used for polar alignment in the Northern Hemisphere using Polaris, while the 60' to 70' circles are used for polar alignment in Southern Hemisphere using Sigma Octantis.

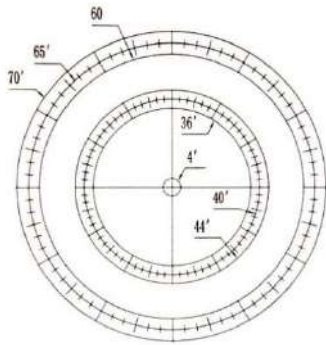


Figure 1. Polar Scope

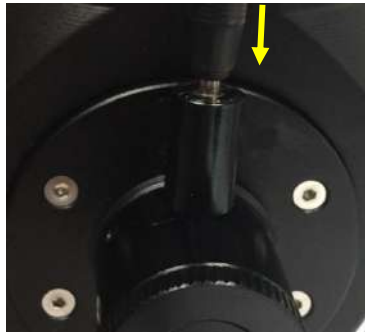


Figure 2. Connect polar scope LED

To perform the polar alignment:

- (1) Level the mount and set it to the Zero Position. Make sure the telescope optical axis is parallel to the polar axis (R.A. axis) of the mount. If using a finder scope, adjust it to be parallel to the telescope optical axis.
- (2) Remove the polar axis cover and eyepiece cover. Thread the polar scope LED into the Polar Scope. Connect one end of the polar scope power cable to the illumination LED and the other end to the polar scope power socket. Some LED can be powered by a DC12V directly, such as the polar scope kits for a CEM26/GEM28/CEM40/GEM45 mount (Figure 2).
- (3) Turn the mount power on.
- (4) Adjust the polar scope dial to rotate one of the major ticks at the top.
- (5) Use the Hand Controller (**MENU** => "**Alignment**" => "**Position of Polaris/SigmaOct**") to display the current position of Polaris on the LCD screen, as indicated in the left side of the figure below. For example, June 22, 2014, 20:19:42 in Boston, US (long. W71°08'50" and lat. N42°30'32", UTC -300 min,) the Polaris Position is 0h45.8m and 40.4m.

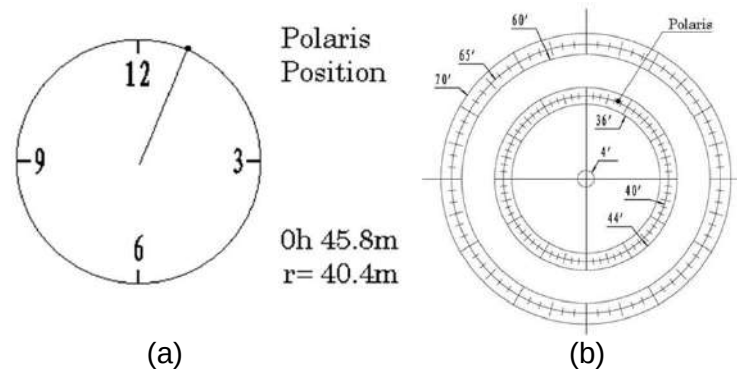


Figure 3. Polaris position shown on HC (a) and where to put on polar scope reticle (b)

- (6) Look through the polar scope to find the Polaris. Use the Azimuth and Latitude Adj. Knobs to adjust the mount in both directions and put the Polaris in the location on the Polar Scope Dial (same as indicated on the HC LCD), as shown in Figure 3 (b).

NOTE: If you are located in the Southern Hemisphere, Sigma Octantis will be chosen for Polar Alignment.

If your mount does not use a iOptron hand controller, or you prefer to use other way to use the iOptron polar scope, here are some links for when to place the pole star on a AccuAlign™ polar scope:

- iPhone App for iOptron polar scope available here
<https://itunes.apple.com/us/app/ioptron-polar-scope/id564078961?mt=8>
- Android app for iOptron polar alignment here;
<https://play.google.com/store/apps/details?id=com.lunari.polarfinderpro>
- Or you can download and install a window based program:
<http://www.polarfinder.com/windows.html>
- Or a Mac/windows based program:
<https://takahashi-europe.com/support/softwares/polarisfinder/polarisfinder-1.5-en.htm>
(When mapping the Polaris position from the 24 hrs dial to iOptron polar scope, you need to divide it by 2. *i.e.* the reading on the dial is 10 o'clock, then you should put the Polaris in your polar scope at 5 o'clock).
- Or download and print the following table/chart to bring with you to the field if you don't want to carry any electronics, as stated:
<http://www.covingtoninnovations.com/michael/blog/1302/index.html>
- The last approach is just putting the Polaris at the center. It may be good enough for a few minutes exposure depends on the lens you are using.