



Telescope accessory

Illuminated Polar finder Scope for EXOS-1

Art. No. 4964210

GB Instruction Manual

Scope of delivery:

Polar finder scope with illuminated reticle

Necessary tools (have to be purchased seperately):

Hex key 1.5mm and 2mm

Illumination

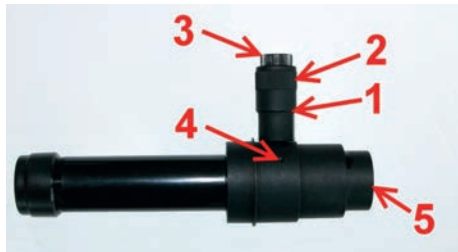


Fig. 1

Before you can switch on the illumination unit (1, Fig. 1), you have to remove the battery strip. Unscrew the knurled cap (2, Fig. 1). Remove the security strip and screw the cap back on. Locate the ON/OFF switch (3, Fig. 1) on the upper end of the illumination unit. It also enables you to adjust the brightness.

Focussing the polar finder scope

Focussing can be done before the installation of the finder scope. Look through the scope at an object that is at least 100m away. If the image is not sharp, look through the scope while turning the eyepiece (5, Fig. 1) until the image is sharp.

Mounting the polar finder scope

Remove the dust cover from the southern end of the polar axis of your mount to get access to the polar finder mounting hole (1, Fig. 2).

Loosen the locking screw of the locking nut (2, Fig. 2).

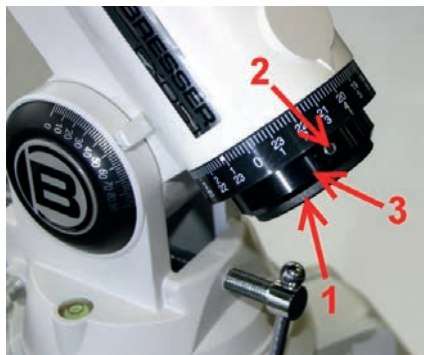


Fig. 2

Unscrew the locking nut (3, Fig. 2)

Make sure the locking screw (2, Fig. 2) has been loosened far enough to prevent damage to the thread of the locking nut.

Remove the illumination unit (1, Fig. 1) from the polar finder scope.

Apply the O-ring to the polar finder scope from the front end (1, Fig. 3).



Fig. 3

Shift the locking nut (2, Fig. 3) onto the polar finder scope.

Re-install the illumination unit.



Fig. 4

Insert the polar finder scope into the polar finder mounting hole (Fig. 4). Lock the polar finder scope with the locking nut and secure the nut with the locking screw. Please take care not to overtighten the screw.

Adjusting the reticle

The alignment of the polar finder reticle (Fig. 5) can be done best during the day.

Then follow the procedure below:

Remove the optics from the mount if this hasn't been done already.

Loosen the Dec-Lock and turn the declination axis to 90°.



Fig. 5

Remove the dust cap from the northern face of the declination housing of the mount (topic 18 in the BRESSER mount manual).

Set up your mount so that you are able to see a land object that is at least 50m away. Use the Alt/Az controls of the mount to center a feature of the object in the polar finder scope. It should be a fairly distinct feature, like a rooftop edge or suchlike.

Loosen the RA-lock of your mount and swing the RA axis from left to right and back.

If the image of the object is not (or very little) moving in the polar finder scope there is no need to adjust your polar finder.

If the object moves while you move the RA axis, follow the procedure below:

The polar finder scope has three radial screws for adjusting the reticle (4; Fig. 1).

Use a 1.5mm hex key to move the reticle. Always loosen two screws a little and counter with the third screw. Then check the polar finder scope adjustment again. Repeat this procedure until the image remains stationary in the polar finder scope while you move the RA-axis. Make sure to have all three adjustment screws locked when you have finished this procedure.

Using the polar finder scope

Orient yourself towards the sky. To align your mount to the celestial pole with the help of your polar finder scope, you need unobstructed view towards the northern part of the sky (or to the south, if you are using the telescope in the southern hemisphere, such as Australia).

The following procedure applies to aligning the telescope for the use on the northern hemisphere, such as Europe or North America. Look for the constellation „Big Dipper“. The Big Dipper represents a part of the constellation „Big Bear (Ursa Major)“. Depending on the season you can see the constellation at different locations at dusk: in the winter it can be seen just above the northern horizon, in spring halfway up in the north east, in the summer almost directly above in the north, and in the autumn in the north west. Fig. 6 shows you the northern part of the sky at dusk in the beginning of January.

The Big Dipper /Big Bear is located directly above the northern horizon. We can spot the three stars that form the handle of the Big Dipper at the middle



Fig. 6

left and two bright stars at the other end of the constellation (marked yellow in the figure 6), one of them being the star „Dubhe“ in the upper right. We need those „rear“ stars to get to the North Star (Polaris). If you prolong the line that is formed by those two yellow stars off the Big Dipper you will get to the brightest star in the constellation Little Dipper/Little Bear (Ursa Minor). This is the North Star (Polaris – also marked yellow).

The North Star may be located in the immediate vicinity of the north celestial pole, but it is not located directly at the pole. For this reason it does circle the pole during the day/year like any other star that circle the celestial pole. We now have to find out on which position on this circle the star is located at this very moment. For this, let us refer to figure 7.



Fig. 7

Fig. 7 shows the engraving on the reticle of the polar finder scope. You may notice three figures with little circles that are connected with lines. These symbols represent constellations. To align the mount onto the north celestial pole we need the constellation in the upper left and the constellation below the middle at the right. You may have recognized the left constellation already – it is the Big Dipper, that we already located successfully. The other constellation is Cassiopeia which we have to locate now. To do this, let us have a look onto figure 8, which is

simply showing a bigger part of the sky than figure 6 above:

We recognize the Big Dipper at the lower part in the middle of the field of view, the North Star almost in the middle of the picture and a constellation at the upper end of the picture just slightly to the right of the middle. This constellation



Fig. 8

looks like a 'W' turned upside down - Cassiopeia. We have marked stars in each of the constellations for you: the first star in the Big Dippers handle (Alkaid), Polaris and the star at the lower right in the constellation Cassiopeia (Epsilon Cassiopeia). These three stars are forming a line.

Now we are moving the polar axis of our telescope mount until the line in the reticle aligns with the orientation of the corresponding line at the sky.

Please notice the difference to the image of the reticle in the beginning of this manual (figure 7): the position of the constellation symbols in the reticle now aligns with the orientation of the real constellations at the sky. Now we lock the RA-axis of the telescope mount. Now you move the mount only with the fine adjustment knobs for azimuth and altitude until Polaris is positioned at the right place in the line in the reticle – we have marked this position already for you with a white dot star. Your mount is now aligned to the North Celestial Pole.



Abb. 9

Aligning the mount to the Southern Celestial Pole is analogous to the alignment described above. The constellations that help us orient the reticle are the Southern Cross (or, more precisely its brightest star, Acrux) and the brightest star in the constellation Eridanus (Achenar). The star that has to be positioned into the right place in the reticle is Polaris Australis (Sigma Octans).



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