

## BINOTRON-27 Quick Reference Instructions

Please carefully read and follow these instructions. It is a very good idea to become familiar with how the innovative BINOTRON-27 eyepiece holders work. This will prevent confusion when operating in the field.



Figure 1.



Figure 2.



Figure 3.

### Using the Eyepiece Holders Properly

1. In *figure 1*. The Diopter Ring has been turned *Counter-Clockwise (CCW)* so that the third gradient line is showing. If both eyepiece holders are set in this manner always, each eyepiece may be moved up or down to fine-adjust focus for each of your eyes at the telescope.
2. Now grasp the diopter ring to prevent it from rotating, and turn the Eyepiece Locking Ring above it *CCW*. This will release the hold on the Dust Plug and the Dust Plug can now be removed as shown in figure 2.
3. Now load your eyepiece into the holder. If the eyepiece barrel is not entering the eyepiece holder easily, turn the Eyepiece Lock Ring a bit more *CCW* until the eyepiece barrel enters smoothly (only 1.25" format eyepieces can be used in The BINOTRON-27)
4. Now while holding the Diopter Ring securely once again, turn the Eyepiece Lock Ring *Clockwise* to tighten the Eyepiece Lock Ring. It does NOT need to be over tightened. Just moderate finger pressure is adequate. You are now ready to observe in your telescope. The eyepiece is being held in a self-centered method 360 degrees. Follow the BINOTRON-27 Manual for your particular telescope type (Ex: SCT, Refractor, Newtonian). The main telescope focuser is always used first to achieve focus and then the Diopter Rings on the binoviewer eyepiece holders can be used for super fine-tuning the focus for each individual eyepiece if necessary.

### Collimating The BINOTRON-27

Each BINOTRON-27 has been accurately collimated to a high degree before shipping. However, we encourage you to learn how to collimate. It's quite easy and you cannot damage the binoviewer if our instructions are followed. After a little practice, you will find that the BINOTRON-27 Eyepiece Holders can be finely aligned at the telescope in one minute or less! When we mention "*collimating the Binoviewer*", we are referring to aligning the eyepiece holders. The prisms are carefully installed by us and set to an ideal position in our lab so that the final alignment is accomplished with the eyepiece holders. This results in a perfectly collimated binoviewer.

### Quick Instructions: Refer to the Main Manual for Additional Details

If you feel that the Binoviewer is producing uncomfortable or double images, please refer to Figs. 5 and 6 first. It is best to view a stationary target in daytime to objectively determine if the eyepiece holders need re-alignment. Observing a planet in your telescope is also a good measure, and the eyepiece holders can be adjusted in that application until the two-eyed image becomes a single perfectly merged image that is very comfortable to view.

1. Fold the binoviewer body first so that the eyepieces match the width of your eyes. You will see the image comfortably without a dark space in the center of the field. This interpupillary (*IP*) adjustment must be done with all binoculars and binoviewers. It is best to fold the bino inward past the best point and then outward again to be sure you have arrived at the best *IP* Width.

2. If you wish to adjust The BINOTRON-27 collimation, loosen the lowest large silver Collitron Ring (fig 4) by rotating it counter-clockwise until the entire upper series of black sections (**Grasp The Diopter Ring to Shift**) can be shifted in a flat circular motion. Both the right and left Collitron Rings should be loosened in this way. Do not over-loosen the large silver Collitron Ring. the idea is that the upper black section of the eyepiece holder which includes the Diopter and the Eyepiece Lock Rings can be shifted in a flat plane but should not tilt or rock excessively. Shift by grasping the wide black Diopter Ring.



Fig 4

3. View a daytime or nighttime object (nighttime: planet is best) and shift both holders at the same time while viewing. The target being viewed will separate and then come together. It is best to produce a good merged image by moving both holders to **the central area of their range** and work them both together in this middle range. When a nice merge image is produced, tighten down ONE holder's Collitron Ring using a fair amount of finger pressure.

4. Now, you can snug down the other holder's Collitron Ring, but not so tight that the holder cannot be shifted a small amount when using a fair amount of finger pressure.

5. Place the object being viewed at the top area of the eyepiece field at 12 o'clock position but not quite touching the edge of the field. This is why a stationary daytime object is easier to work with. See Figure 5. Is the object located in the same position relative to the eyepiece field's edge in both the right and left eyepieces?

If not, adjust the eyepiece holder by pushing it in one direction or another. The eyepiece field can be imagined as a circle surrounding an object. That circle will move in the direction that you push the holder. So, in the example shown in figure 5 at the top, the right holder must be pushed in a downward motion. After this has been done, the result is seen in the bottom of figure 5

6. Horizontal position of the object should also be checked alternately as the holders are adjusted with one another. Note that some offset in the objects position in the Horizontal aspect is acceptable, and can even create an increased sense of 3-D. In everyday life, we see objects in 3-D because we are viewing them from different angles with our right and left eyes and in reality, the position of close by objects are offset in the horizontal position in each eye. However, the vertical locations shown in the lower half of Figure 5 **must be adhered to** or a poorly merged and uncomfortable view will result.

Figure 6 shows some offset in the horizontal (upper), and then matched positions (lower).

The right holder has been shifted left to bring the object closer to the field edge in the lower view. As mentioned, some small differences in the horizontal positions of an object in the right and left eyepieces is acceptable. However, we do collimate the holders before shipping so that both Vertical and Horizontal are very closely matched.

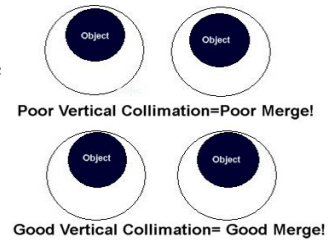


Fig 5

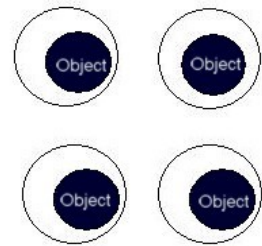


Fig 6

## Collitron Tightening Tool

These tools as shown in the main manual are being machined and if not already included, will be shipped to you as soon as they are ready. Note that any tool, even a thin philips screwdriver can be inserted to the holes and you can rotate the Collitron Ring clockwise to increase the tightness. **There is no need to over-tighten this ring.**

## Collimating Indoors Without a Telescope

We are now producing, and expect to have ready a special 2" reticle device called The Collitron Reticle. It allows you to collimate the BINOTRON-27 eyepiece holders indoors. All that you need are a pair of eyepieces loaded in the binoviewer. Instructions will be included. The image at the right shows what The Collitron Reticle looks like. The Collitron Reticle assembly threads right into the Power Switch of the Binoviewer. after other parts are threaded out. The reticle image can then be viewed through the eyepieces of the binoviewer. It is very easy to use and I can consistently collimate the holders in a minute or less to a very high level of accuracy! Email us for pricing and availability.



## Avoiding Problems

The main source of problems using the holders will occur because certain parts have been over-tightened. This is especially true if the Diopter Focuser Ring has been lowered until it bottoms out and is then further forced in a counter-clockwise direction. It may then cause the Collitron Ring to loosen. The collimation process will then need to be repeated. Do not move the Diopter Ring upward or downward past the point where it stops as this is unnecessary. Also, the Diopter Ring should be grasped when the upper Eyepiece Locking ring is either tightened or loosened. Remember to always keep the Diopter Ring threaded slightly up as described earlier so that over-tightening and de-collimating can be avoided.