



Instructions Manual

Omegon® Laser Collimator 1.25"

Congratulations on the purchase of the new Omegon® Laser Collimator 1.25". This device allows to easily align the optics of a reflector (newton) or a catadioptric telescope (Schmidt-Cassegrain for example) for optimal performance with and high degree of accuracy and precision. A battery is included, just turn the laser on and start aligning the optics.

1. What is included?

1. The laser collimator;
2. One CR2032 Battery type (already mounted).

2. Getting started

Alignment of the optics of a telescope is of extreme importance. To operate at its best performance, the telescope's optics must be perfectly aligned. Alignment is also known as collimation and it consists on tilting the optical elements of the telescope so that all optical and mechanical axis become perpendicular to each other. For a reflector telescope the primary mirror's surface (and thus its optical axis) should be perpendicular to the optical tube (i.e. the axis parallel). The secondary mirror should be tilted at an angle of 45 degrees from the primary mirror. This ensures that all the light coming from the object will be reflected at the primary mirror to the secondary mirror and this latest will reflect it to the eyepiece. Without this perfect alignment images can become blurry and unsharp.

2.1. Understanding the Laser Collimator.

The out-coming laser beam from the built-in red laser is used to align the optics. This beam when hitting a surface looks like a red point and it is used to centre and align the optics. The beam brightness can be adjusted with seven different brightness levels. Rotate the top where the ON /OFF is marked

2.2. Replacing the supplied battery.

Eventually the battery will run out of power, or the laser beam may become too dim to be seen. To replace the battery simple remove the battery cap using a coin (5 cents of euro coin). Rotate the coin counter-clock wise to expose the battery. Press gently on the side to dislodge the battery from its compartment. Remove the battery and dispose it



Figure 1. Remove cap to expose battery.



Figure 2. Rotate top to turn laser ON.

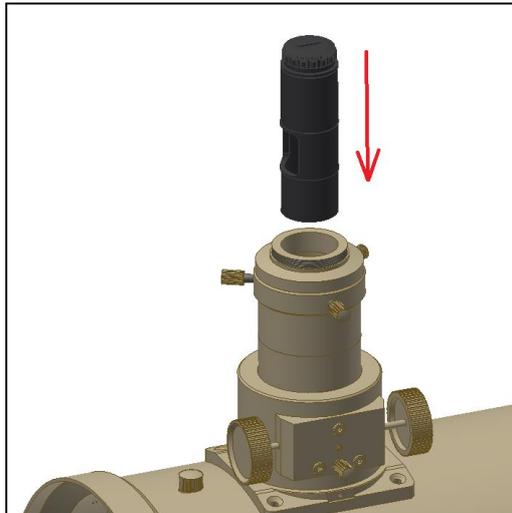


Figure 3. Insert laser collimator in the focuser's draw tube. Make sure to tighten as if it was an eyepiece.



Figure 4. Rotate the laser viewer window so when adjusting the primary mirror the laser point can be seen.

Introduce the new CR2032 type battery and place the battery cap. Make sure to tighten the cap firmly, caution should be taken when threading the battery cap, **threads are very fine and sometimes threading can be difficult**. Make sure the cap is properly threaded, use the coin if necessary.

3. Using the laser collimator. Start by checking if the secondary mirror is centred under the focuser (Figure 6). Peek through the focuser's aperture and centre your eye. The "circle" (secondary mirror) as seen from the focuser should be centred with the focuser's draw tube (concentric). Usually the secondary mirror is aligned with the focuser's draw tube when the telescope is assembled at the factory, but if necessary move the secondary mirror up-down along the tube. The secondary's mirror cell central bolt should be used for this matter (figure 5 red arrow). Untighten it to lose the secondary mirror, notice that by doing this the secondary mirror can rotate. Use the three collimation screws on the secondary spider (figure 5) to make sure the secondary is really round when looking through the focuser barrel. Now insert the laser collimator in the focuser (figure 3). Turn the laser beam on. The laser will hit the secondary mirror and will reflect heading for the primary mirror (figure 7 -1). If the red laser beam comes out through the telescope's aperture, it means that your telescope is extremely out of collimation.

Warning: Do not place your face in front of the telescope's aperture, use your hand to check if the beam comes through the aperture! Laser radiation can be dangerous for your eyes. Never point it to reflective surfaces or to a face.

Alignment procedure (Figure 7 - red is the incoming laser beam from laser collimator; orange is incoming laser reflection from primary mirror).

- 1) Use the secondary mirror's adjustment screws (figure 5) so that the red dot on the primary's mirror surface is at the centre of the primary mirror (figure 7-2). The beam red circle should show up on the laser viewer (figure 7-2 top)
- 2) Use the primary mirror's adjustment screws (figure 4) so that the red circle on the laser viewer is centered in the viewer's bullseye.

Repeat if necessary to fine tune and achieve precise alignment. Your telescope is now collimated.

Note: this procedure is also valid for Catadioptric telescopes such as Schmidt-Cassegrain and Maksutov-Cassegrain telescopes.

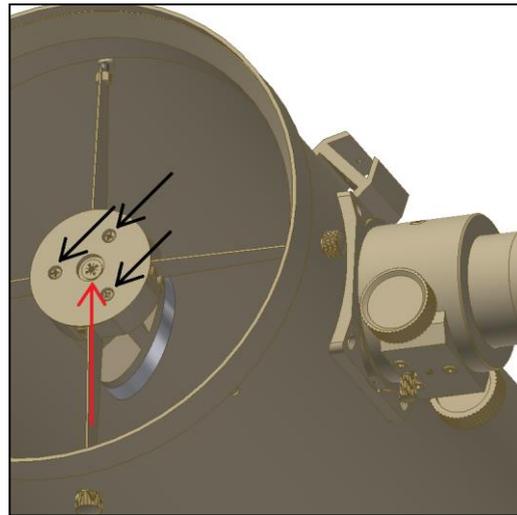


Figure 5. Adjust secondary mirror.

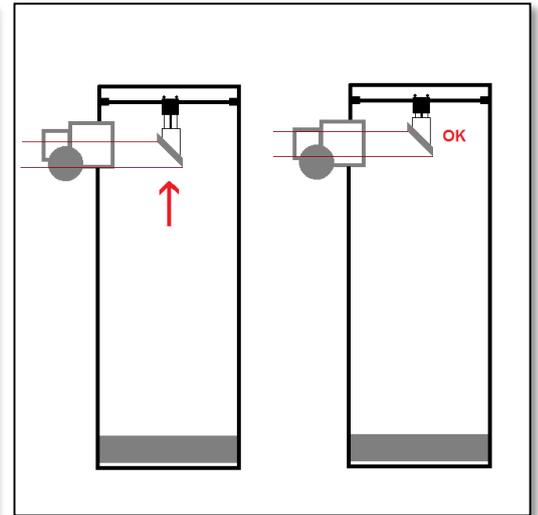


Figure 6. Move secondary up-down if necessary.

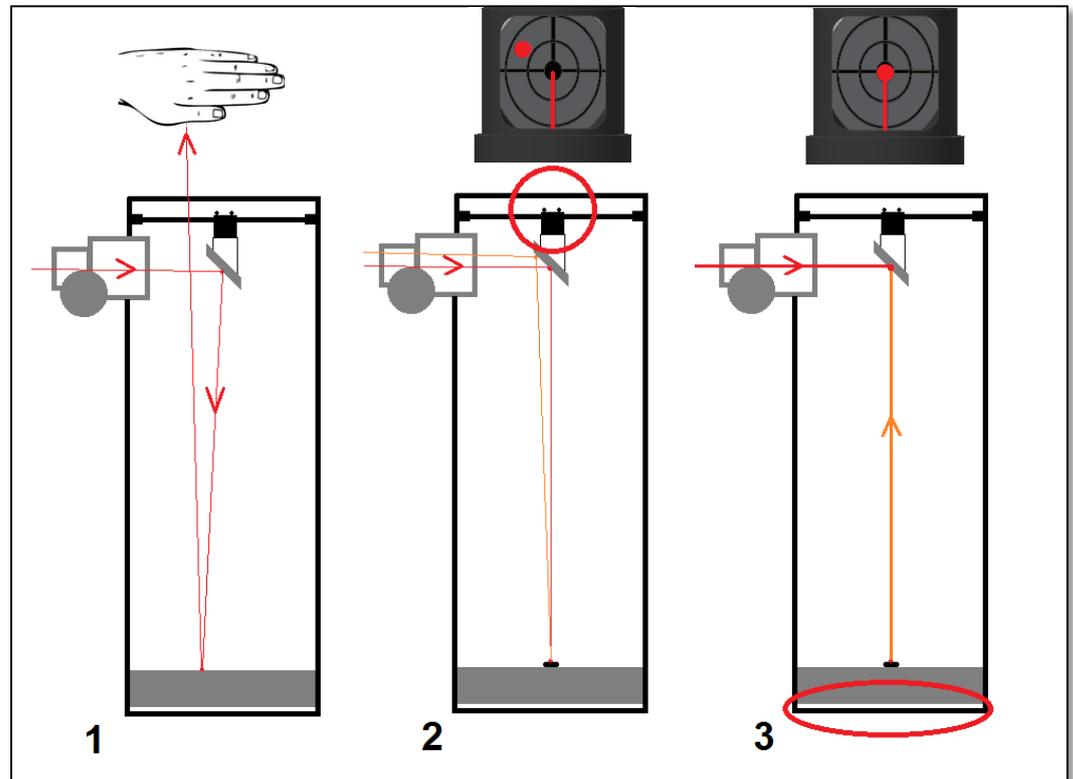


Figure 7. #1 – Telescope extremely out of collimation; #2 – Secondary mirror adjustment screws used to point the main beam to the centre of the primary mirror's circle centre; #3 – Primary mirror adjustment screws used to point the reflected beam to the secondary.