

omegon

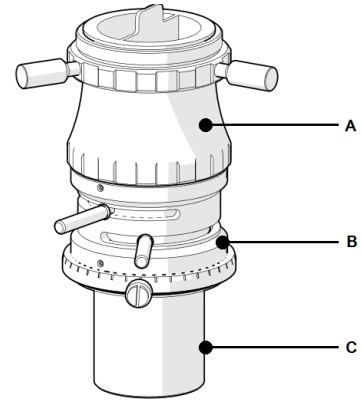
ADC

atmospheric dispersion corrector

1. Getting started.

1.1. What's included?

- A- Adapter 1.25" to T-thread female;
- B- ADC body;
- C- 1.25" nosepiece with filter thread.



1.2. What is an ADC? An optical device that introduces light dispersion (refracted) to an optical train. This nulls the existing dispersion from an object as seen by the observer. It makes the object sharper and colour corrected. It is therefore a must have for planetary imaging with modern CMOS or CCD camera where sampling resolution is high and all negative effects of light dispersion are seen.

1.3. What is light dispersion? It is a phenomenon observed when white light crosses a medium and is divided into its basic wavelengths. A rainbow is a natural phenomenon based on the same principle; the same applies light passing through a glass prism. Astronomical objects suffer from the same problem. They are observed from the Earth's surface. The atmosphere between the object and the observer acts as a prism and decomposes the light into its different components. Different over-imposed and slightly shifted images, in different wavelengths, are seen by the user. The thicker the atmosphere the worse the dispersion. Objects close to the Zenith have a smaller dispersion in comparison to the ones near to the Horizon (thicker atmosphere).

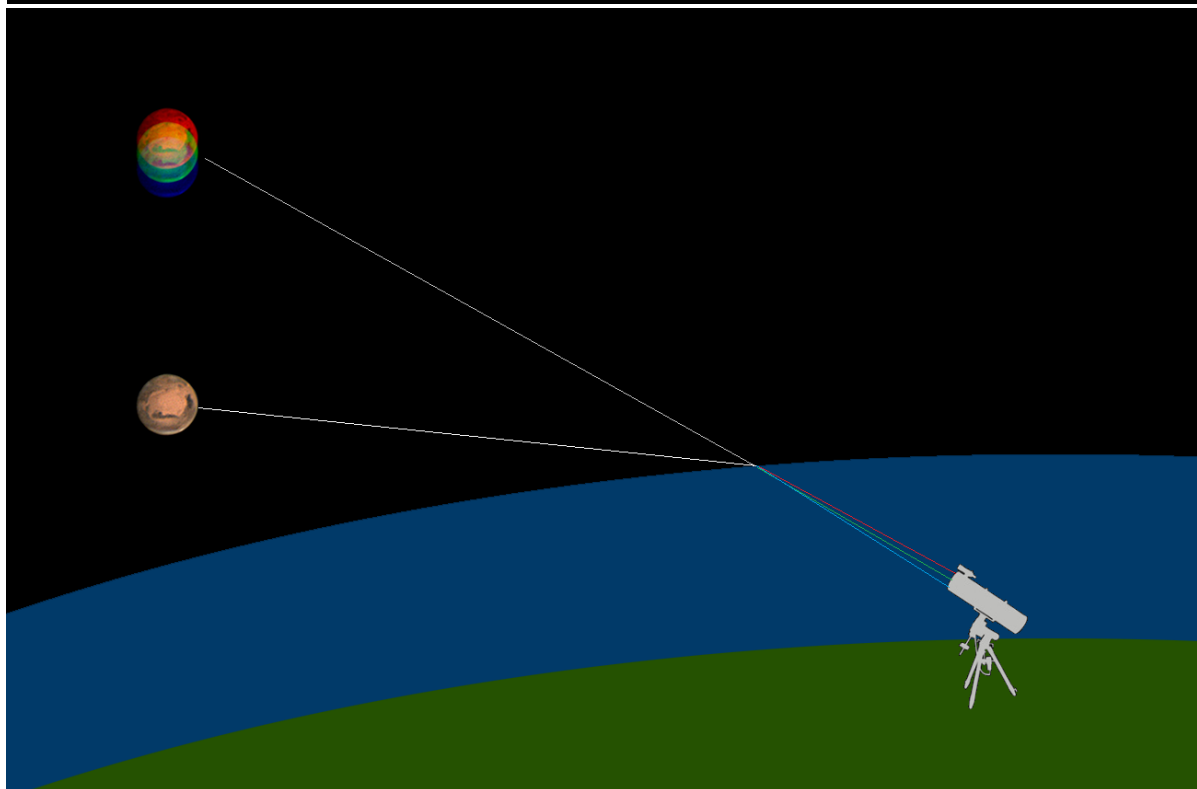
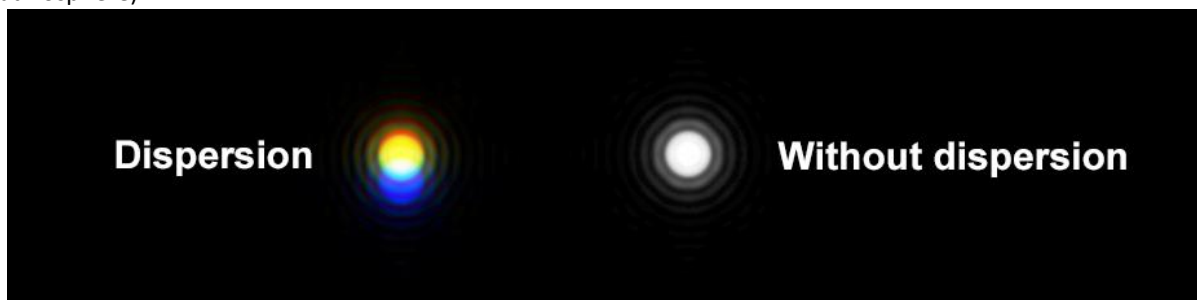


Figure 1. Real image vs as seen by the user.

2. How to use the ADC? The ADC has two built-in wedge prisms, which are set parallel to each other and rotate transversally. The wedge on each prism introduces a certain amount of dispersion (negative) and compensates to the existing object dispersion. An object closer to the Zenith has less dispersion. An object closer to the horizon has a more noticeable dispersion. For that reason, the introduced dispersion by the ADC needs to be adjusted. The prisms are rotated to get the required correction. By doing so the several “object images” in different light wavelengths are shifted bringing them back to one single image creating a sharp image. Worth of mentioning is even dedicated software cannot align correctly the different RGB channels. Only an ADC can perform this correction perfectly

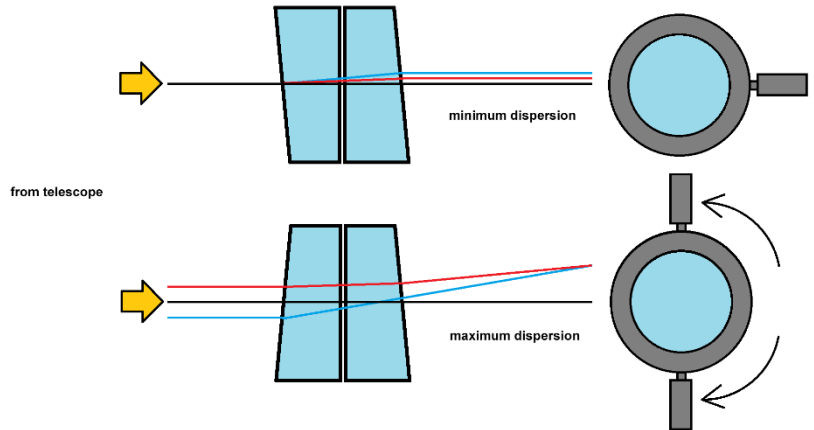


Figure 2. How the ADC works.

3. ADC's body features.

- 1. Angle adjustment thumbscrews
- 2. T-Thread M42x0.75 male
- 3. Angle ring
- 4. Angle ring thumbscrew

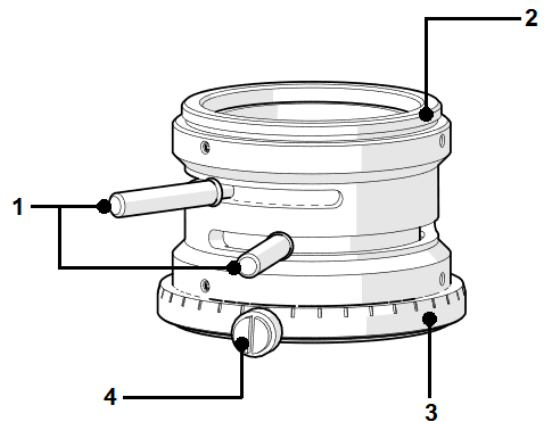


Figure 3. ADC Body.

3.1. Using the ADC. Rotate the two angle adjustment thumbscrews (1) to change the dispersion correction. When doing this the object will shift as seen by the camera. At this point small adjustments will be required to re-centre the object. The angle ring (3) can be rotated and fixed using the angle ring thumbscrew (4). The angle ring can be used as a reference for the rotation. It is marked with different angles.

4. Features ADC body

- Required back-focus 40mm
- Body thickness 37mm
- Wedge angle 2.5deg
- Wedge-prism glass BK7
- Coatings Broad-Band AR

5. For which objects should I use the ADC? In theory, it can be used for all deep-sky objects. The most noticeable results are seen in the Moon, Jupiter, Saturn and Mars. For Venus this ADC may not be adequate and its use depends on which kind of filters one may want to use.

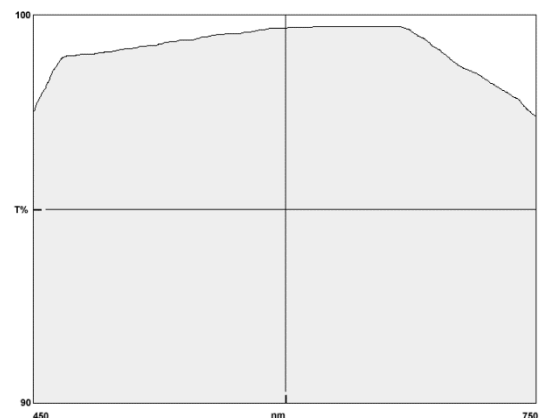


Figure 4. Prism transmission graph.

Image shift: By rotating the prisms the image will shift. It is recommended to proceed with caution and rotate the prisms slowly. Re-center the object to compensate the image shift whenever necessary.