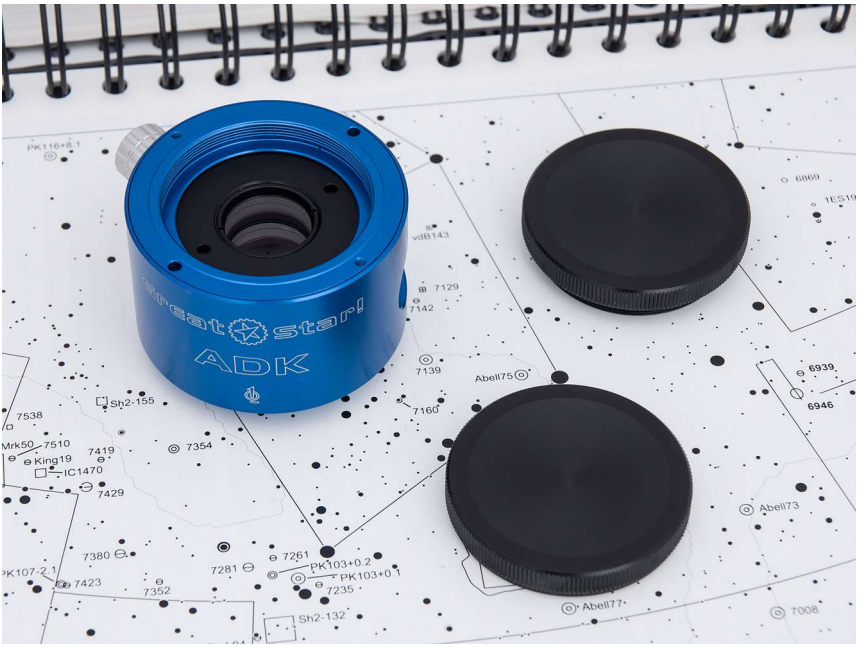
Use of the atmospheric dispersion corrector

ADK

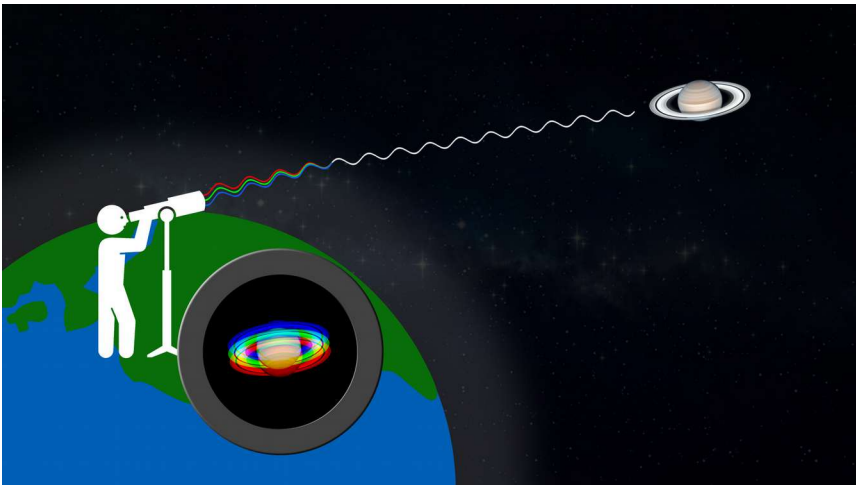


Warning note:
ADC is **not** an accessory for observing the sun!

Never observe the sun without sufficient protection or accessories expressly recommended for sun observation. Permanent eye damage may result!

Why is an atmospheric dispersion corrector needed?

The dispersion corrector is a component that corrects the refraction of light in the atmosphere. Simply explained, colored edges are often seen on bright, low-lying objects when observed with a telescope. Large or bright objects such as Jupiter, Venus or Sirius have a red and blue color fringes and appear distorted near the horizon. This effect is caused by the refraction of light in the atmosphere and is called atmospheric dispersion. Here, the atmosphere acts like a prism and fans out the incoming light beam into its spectral components. This effect is stronger the deeper the object is above the horizon.



Design and principle:

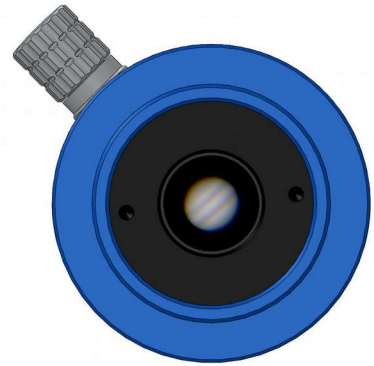
The atmospheric dispersion corrector (ADC) corrects this negative effect by means of two counter-rotating prisms and allows the objects to be observed largely free of these color errors and distortions. The special feature of this ADC is that dispersive elements made of cemented wedge plates are used. These consist of 2 different types of glass which are connected to each other to form a flat plate. By these special elements the optical performance of the telescope is fully maintained and when adjusting the compensation the object to be observed remains in its place. As a result the corrector is free of image offset and therefore free of coma.

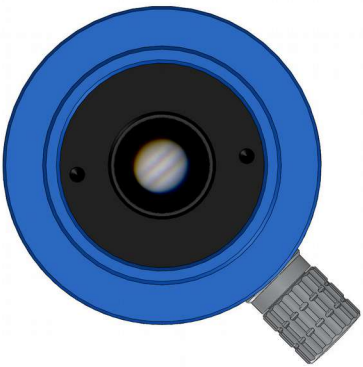
Application:

The application of ADC is very easy. With the multifunction dial, both the direction of the dispersion (it is always directed towards the zenith) and the strength of the correction can be adjusted. In the zero position of the dispersion a small mechanical detent can be felt. This makes it very easy to find the neutral position. The maximum correction is reached after one revolution. After a further rotation, there is no correction in the neutral position. If you continue to turn, the maximum correction in the opposite direction is reached after one revolution and the initial state after another revolution.

The adjusting wheel must always point in the direction of the dispersion. This means from the horizon to the zenith or vice versa (nadir). With an azimuthally mounted telescope this is quite simple.

As soon as a parallactic mount or a star diagonal comes into play, the horizontal position in the eyepiece may not be so easy to see. A simple method is now e.g. to find the direction of the dispersion by looking into the eyepiece when the ADC is in neutral position (click position).





This is relatively easy to see with low standing objects. Now turn the prism unit around the optical axis, so that the adjusting wheel points again in the direction of the dispersion. Again it does not matter if the adjusting wheel (in relation to the eyepiece view) points in the direction of zenith or nadir.

Now the strength of the correction can be adjusted with the adjusting wheel. Turn until the color edges disappear. If the color edges become stronger, this is a normal function. Just turn further or back to the neutral position. After that, the correct range of the correction is reached. If a complete correction is not possible, an extension sleeve between ADC and eyepiece is necessary. See: General notes.

General notes:

The effect of the ADC is strongly dependent on the aperture ratio of the objective and the distance of the focal plane to the wedge prisms. The greater the distance to the focus, the greater the possible dispersion correction.

Depending on the telescope used, it may therefore be necessary to insert an extension tube between the ADC and the eyepiece for very low objects. If the backfocus is not sufficient, a Barlow lens or glass path corrector can be screwed in before the ADC.

Optimum results are achieved with aperture ratios from f/10.

Cleaning and care:

When not in use, always close the housing with the dust caps provided.

If it is necessary to clean the optical surfaces, always first blow away the dust with a dust blower and then carefully wipe off with isopropanol.

Technical data:

overall length:	35mm
Connection thread:	Both sides T2 (M42x0.75)
passage:	17 mm
Broadband AR coating:	350-700nm
Surface accuracy:	Better λ/10 at 633 nm

Have fun with the **ADC** and clear sky

Steffen Noack