Manual for O'Tilter

Manual for OGMA's O'Tilter

The O'Tilter is OGMA's Back Focus & Tilt Adjuster Device

IMPORTANT: Even though you may be tempted to skip reading this documentation, installing and using a tilt adjuster is a delicate process that requires knowledge, patience, and understanding of what you are doing.

Consider this:

- Installing a Tilt Adjuster the wrong way can damage your camera, void your warranty, and make your optics worse.
  Learn how to install your O'Tilter the right way.
- Using a Tilt Adjuster without understanding how it works is a path to guaranteed frustration.
  Learn how to use the O'Tilter with ease.

OGMA designed and built this device to help you make the sharpest possible astronomy images. We hope you'll enjoy it!

Introduction

Overview

O’Tilter is a back focus and tilt adjuster specific to OGMA AP26 series cameras. It is also compatible with the latest Touptek ATR3CMOS cameras that share the same design as OGMA’s.

Important dimensions:

- The external diameter is 93mm
- The back focus stays the same at 17.5mm

- Every degree of turn of the screws represents approximately 1µm of displacement

Purpose and Benefits

O’Tilter by OGMA helps fine-tune optical back focus and tilt to achieve better focusing and pinpoint stars across the image field.

The controlling screws on the O'Tilter are accessible from the back of the camera; this is very convenient because there is no need to constantly detach and reattach the camera to the optics in order to perform the adjustments.

Designed to be user-friendly, OGMA's O'Tilter Back Focus & Tilt Adjuster contains unique markings developed by OGMA to minimize the mental gymnastics often required when working with tilt adjusters.

With just 93mm of external diameter, the O'Tilter matches the central obstruction of a RASA 8 telescope making the O’Tilter suitable for this type of optics.

Important Safety Considerations

The O’Tilter isn’t really heavy, but it is made of very hard, airspace-grade aluminum alloy; you will be sorry if it drops on your bare feet and hits you with the edge. Believe us.

Prioritizing safety and wearing shoes will keep your toes unscathed. Follow this advice to avoid toe-crushing experiences and enjoy your imaging nights worry-free!

Keep the O’Tilter, as well as the other small parts that come with it, away from children. Not sure why, but some children, especially the smaller ones, like to eat things they aren’t supposed to.

The O’Tilter has a ring that holds the camera. If the camera isn’t properly connected to the O’Tilter ring, it could slip off, fall to the ground, and damage itself. Falls aren’t covered by warranty. To make sure that the camera won’t slip off the O’Tilter ring:

- Learn how to install the O’Tilter before trying to install it.
- Insert the camera into the O’Tilter ring until it reaches the front of the ring.
- Tighten the two tangential screws and never remove their spring lock washers.
- Tighten the safety flat-tip screw at the TOP of the O’tilter ring.

How to install the O'Tilter

This video contains subtitles in English and Spanish.

How to use the O'Tilter

Note: This page is a work in progress.

Use N.I.N.A.'s aberration inspector (or similar software), take a photo, and measure the back focus and tilt. The goal is to achieve zero or near zero tilt and back focus error.

- If you get a positive (+) number, correct it by applying a negative (-) correction.
- If you get a negative (-) number, correct it by applying a positive (+) correction.

If you're wondering how you apply positive or negative corrections, wonder no more! The markings near each pair of screws will guide you. Follow these markings from left to right or from right to left, always starting with the sign (+ or -) and finishing with the lock. How much do you rotate the screws? Approximately one degree per micrometer of correction following this process:

1. Identify on the surface of the O'Tilter the side or corner that you want to correct (L = Top Left, R = Top Right, B = Bottom)
2. Identify the type of correction that you want to apply (+ or -).
3. To apply a correction, use one of the 3 pairs of pull/push screws.
4. Always start applying the correction on the screw that is marked with the sign (+ or -) that corresponds to the type of correction that you want to apply.
5. Always finish by locking using the screw marked with the lock sign.

Let's use an example:

I have identified 90 micrometers of positive error in the Top Left corner of the sensor.

1. I'll correct this error by using the pair of screws marked with the letter **L** (i.e. Top Left).

2. First, I'll rotate the screw marked with the negative (-) sign 90 degrees in the direction of the circular arrow.

3. Then, I'll rotate the screw marked with the lock sign in the direction of the circular arrow until it is firm (i.e. locks).

That's it! Take another photo and correct it again until you get the smallest possible number. If you have to apply a positive correction, then start with the screw that has the positive sign (+) and finish by locking.

Tip

The threads of the screws are very thin. If you apply too much pressure, you will break them. Also, it is always preferable to insert the short side of the Allen wrench into the screws that have a (+ or -) sign and insert the longer side of the wrench into the screws that do the locking. This way you will be able to estimate the degrees of movement using the longer side of the Allen wrench as a dial while using the shorter side of the wrench to apply a smaller torque to the locking.

FAQ

What is the back focus of the camera once the O'Tilter has been installed?

The back focus should stay very close to 17.5 mm. Make sure that you use the guitar picks as shown in

the installation video of the O'Tilter to create an initial gap of approximately 0.7 to 0.9 mm between the ring of the O'Tilter and the front plate.

What is the thread pitch of the tilting screws?

The thread pitch of the tilting screws is 0.45 mm. Considering how far the screws are from the sensor and based on trigonometry, you will get approximately 1µm of displacement per degree of rotation.

Comments

Would you like to suggest corrections for or improvements to this page? Click here and tell us!