

Ultra-Cat 108

Apr 22, 2025 by W0 Team



Specification

Lens Type	5 Elements Advanced Petzval Design
Focal Length	518 mm
Diameter	108 mm
Focal Ratio	f/4.8
Image circle	60 mm
Focuser	WIFD R&P Focuser (Compatible with EAF)
Adapter Included	Tilt Adjuster / Rotator / M68, M54, M48 Camera Adapters
Optional Flattener	No Flattener Required
T-rings Supported	Canon EF, RF Nikon F, Z Sony E Pentax K MFT (M4/3) FUJI X
Camera Format	Medium Format / Full Frame / APS-C / M43
Tube Length	512.9 mm - 617.9 mm
OTA Weight	7.82 kg / 17.24 lbs

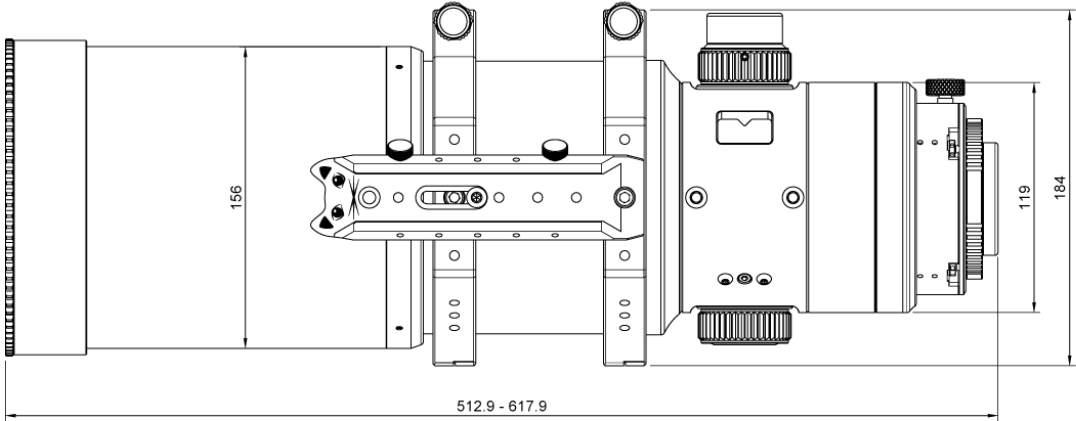
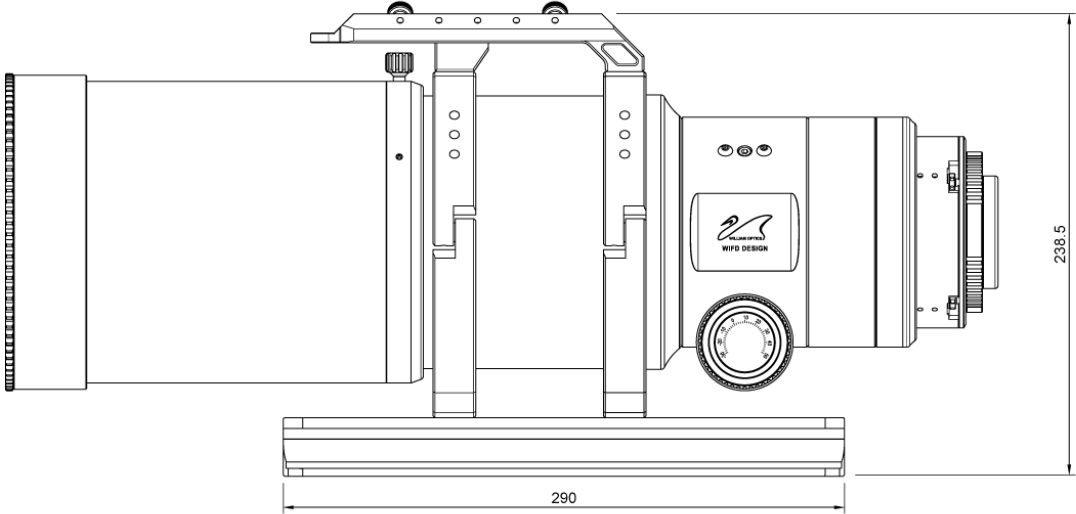
Total Weight	
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Diagram Reports

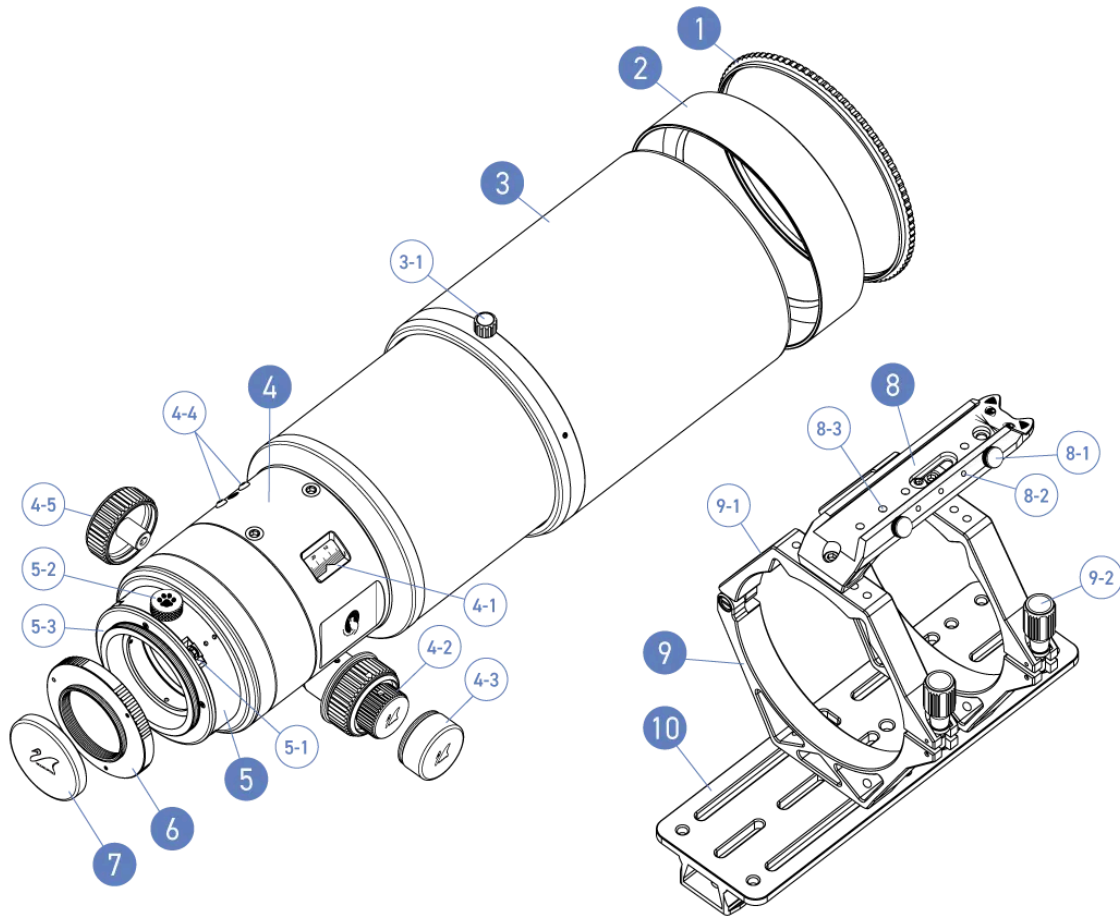
- ▶ **Spot Diagram**
- ▶ **Longitudinal Aberration**
- ▶ **MTF Chart**
- ▶ **Relative Illumination**

[Learn how to read Diagram Reports](#)

Size Diagram



Parts



- | | |
|--|--|
| <p>1 Front Bahtinov Mask Cover</p> <p>2 Lens Cover with Bahtinov Mask
How to focus with the Bahtinov Mask ?</p> <p>3 Dew Shield, retractable – 105 mm</p> <p>3-1 Dew Shield Locking Screw</p> <p>4 WIFD Focuser
How to adjust Focuser Tension?</p> <p>4-1 Focus ruler scale Window</p> <p>4-2 Two Speed 1:10 Ratio Fine Knob</p> <p>4-3 Fine Knob Protecting Cover</p> <p>4-4 M4 Screw Holes for Finder Bracket</p> <p>4-5 Focuser Knob with Temperature Gauge (Can be removed to attach EAF. How to install EAF?)</p> <p>5 Sensor Tilt Xterminator (STX) with integrated Camera Rotator (CAA) How to adjust STX?</p> <p>5-1 STX Auto Tension Screw</p> <p>5-2 CAA Locking Knob</p> <p>5-3 CAA 360° engraved scale</p> | <p>8 Handle Bar with Mini Vixen-style Mounting Base (HCRC-L)</p> <p>8-1 Mounting Base Locking Screws (M4)</p> <p>8-2 M4 Screw Holes For Locking Screws</p> <p>8-3 M6 Screw Holes</p> <p>9 Mounting Ring</p> <p>9-1 M6 Screw Holes for Finder Bracket</p> <p>9-2 Mounting Ring Knob</p> <p>10 Vixen-style Dovetail Plate (PV-LII)</p> |
|--|--|

6 M79 → M48 Adapter with M48 Filter Thread
How to install a Filter?
(M79 → M54, M68 Adapter interchangeable)

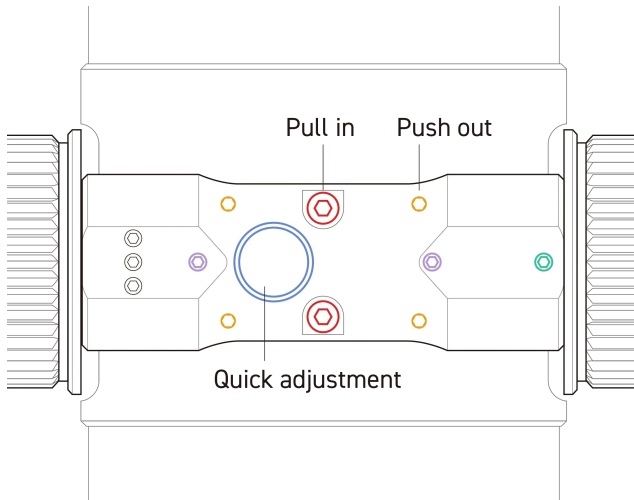
7 M48 (M54, M68) Rear Dust Cap

Operation Guide

Focuser Tension Adjustment

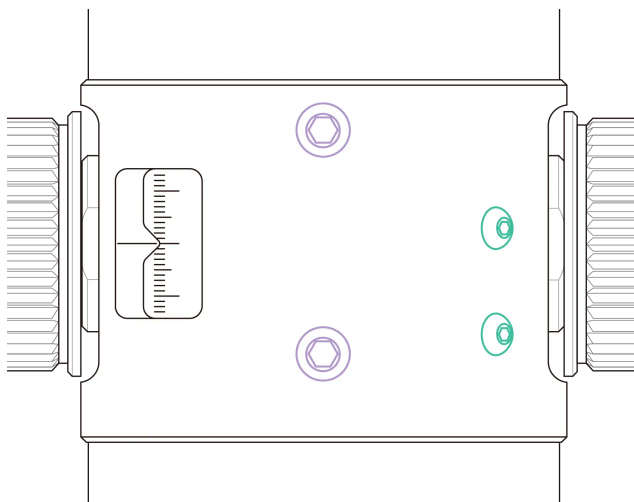
There's two side to build WIFD focuser tension:

BUTTON / Rack & Pinion Gear



- Quick tension adjustment knob
- Smoothness adjustment
 - Pull in (3mm Hex)
- Smoothness adjustment
 - Push out (2mm Hex)
- Can be removed to attach the electronic devices such as EAF ([refer to Installing EAF](#)) or be used as a spare.
- Please Don't Touch

TOP / Focuser Draw Tube



- Focuser Draw Tube Tension Screws
Please Don't Touch
- Guider/Finder bracket mounting screws (2.5mm Hex)

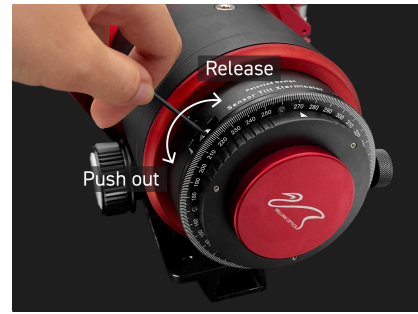
⚠ The focuser smoothness adjustment **ONLY** when necessary by progressively push & pull screws until you reach the desired smoothness.

⚠ When using the telescope with the motor, be sure not to over-tighten the tension screw, as this could damage the focuser. Consider it like driving a car while pressing both the gas and brake pedals simultaneously. Just as this could harm your car's systems, over-tightening the tension screw can compromise your telescope's focuser functionality.

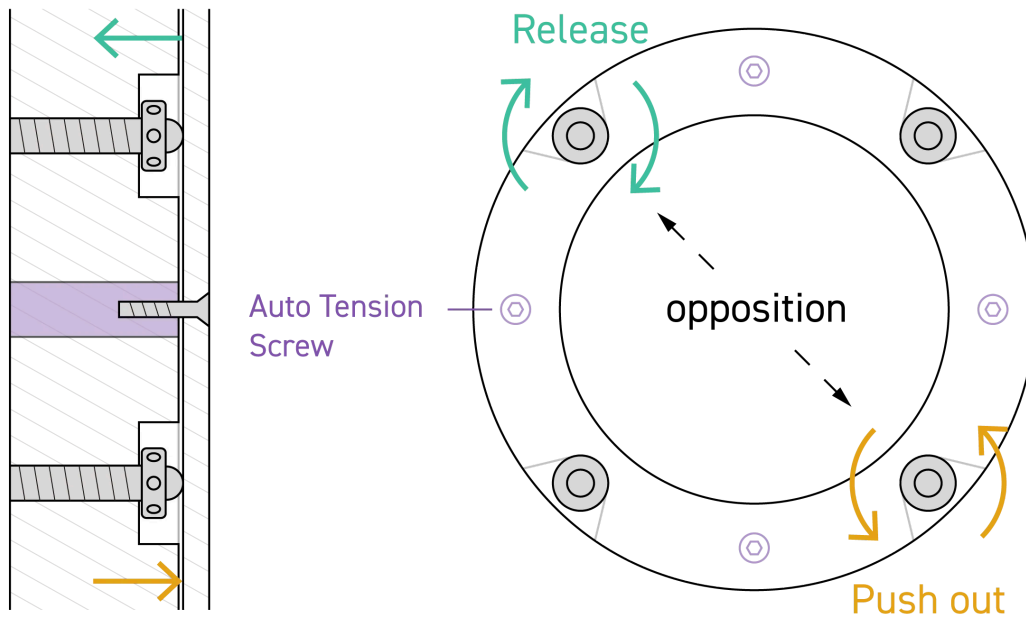
Sensor Tilt Adjustment (STX)

1. Locate the pair of **diagonally opposing screws** corresponding to the affected corners.
2. Use 2mm hex key to **release (turn clockwise)** the knob near the corner **where the sensor is too far**.
3. **Push out (turn counterclockwise)** the opposite knob accordingly.

- **Do not touch the Auto Tension Screws.** It may disrupt balance or cause loosening.
- **Make small adjustments** — turn each knobs only about 1/8 turn at a time.



Any **2mm rod or hex key** can be used to twist the knob mechanism.



4. After each adjustment, **perform a test exposure** to check the star shape and alignment. Fine-tune as needed until the stars are round and sharp across the entire frame.

Tips & Notice

- **Typical adjustment sessions take 2–4 test exposures** to reach optimal flatness. However, fine-tuning may vary depending on your camera, filter, and backfocus setup.
- **Tilt does not need to be adjusted frequently.** Once set, it should remain stable unless major components (e.g., camera, tilt plate, or spacing) are changed.
- For best results, perform tilt adjustments in a **stable environment** (minimal temperature change, fully cooled optics and sensor).
- **Avoid overtightening**, which may deform the sensor platform or affect collimation.

Installing EAF



1. Turn the telescope over and remove the Tension screw.



2. Remove the top cover screw near the temperature gauge with 2mm Allen key.



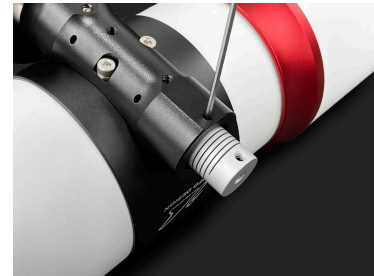
3. Release (don't remove) two inner knob screws.



4. Remove the temperature gauge knob.



5. Find the flat side on the shaft and turn it to face the hole.



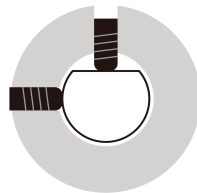
6. Put the 5-6mm Flexible coupling on the shaft and lock the two inner screws.



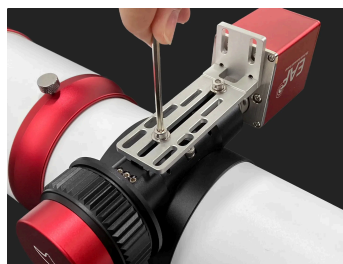
7. Put the EAF body on and lock the two inner screws.

On Step 6 & 7:

Please make sure one of the screws is lock on the flat side



8. Align the screw holes.



9. Lock the four M4 bracket screws.



Installing Filter

Only applies to the M48 camera adapter (There are no filter threads on the M54 / M68 adapter, filter wheel is used instead)



1. Lock the Rotator



2. Take off the M48 adapter



3. Lock the filter (male thread)
inside the M48 adapter (female thread)

- It is recommended to apply some lubricating oil on the threads first to avoid being permanently tightened.



4. Put the adapter back

Accessories Map



Camera Adapter



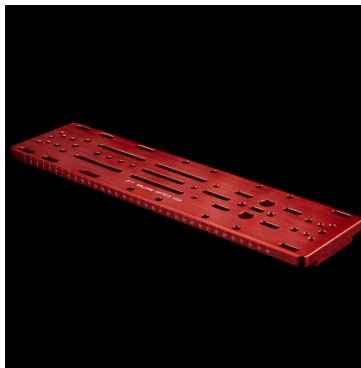
UniGuide 50mm f/4.0



STC Filter



Red dot finder Kit



Losmandy-style Dovetail Plate