

Ultra-Cat 56

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Lens Type	5 Elements Advanced Petzval Design			
Focal Length	269 mm			
Diameter	56 mm			
Focal Ratio	f/4.8			
Image Circle	50 mm			
Focuser	WIFD R&P Focuser			
Focuser Travel Length	0-30 mm			
Adapter Included	Sensor Tilt Xterminator	Rotator	M54 Camera Adapter	M48 Camera Adapter
Optional Flatteners	No Flatteners Required			
Camera Format	Full Frame	APS-C	M4/3	
Total Weight	3.21 kg / 7.08 lbs			
OTA Weight	2.56 kg / 5.64 lbs			
Tube Length	296.3 mm - 348.3 mm			

Diagram Reports

► Spot Diagram

► Longitudinal Aberration

[Learn how to read Diagram Reports](#)

Size Diagram

- 1 Front Bahtinov Mask Cover
- 2 Lens Cover with Bahtinov Mask
- 3 Dew Shield, retractable – 52 mm
- 4 WIFD Focuser [[Tension Adjustment Guide](#)]
 - 4-1 Focus ruler scale window
 - 4-2 Two Speed 1:10 Ratio Fine Knob
 - 4-3 Fine Knob Protecting Cover
 - 4-4 M4 Screw Holes for Finder Bracket
 - 4-5 Focuser Knob with Temperature Gauge
(Can be removed to attach EAF) [[Installation Guide](#)]
- 5 Sensor Tilt Xterminator (STX) with integrated Camera Rotator (CAA) [[Adjustment Guide](#)]
 - 5-1 STX Adjustment Knob
 - 5-2 CAA Locking Knob
 - 5-3 CAA 360° engraved scale
- 8 Handle Bar with Mini Vixen-style Mounting Base ([HCRC](#))
 - 8-1 M6 Screw Holes
 - 8-2 M4 Screw Holes For Locking Screws
 - 8-3 Mounting Base Locking Screws (M4)
- 9 Mounting Ring
 - 9-1 M4 Screw Holes for Finder Bracket
 - 9-2 Mounting Ring Knob
- 10 210mm Dual side Dovetail Plate (Vixen-style & Arca Swiss Type) ([PRC210-Light](#))

- 6 M68 → M48 Adapter (M68 → M54 Adapter interchangeable)
 - 7 M48 (M54) Rear Dust Cap
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Operation Guide

Focuser Tension Adjustment

William Optics focusers are typically smooth and ready to use without any adjustment. For larger telescopes, tightening the **Quick Tension Adjustment Knob** can help prevent tube slippage. Other than this, we recommend not touching any screws on the focuser. If adjustment is necessary, please consult a qualified technician.

There's two side to build WIFD focuser tension:

BOTTOM / Rack & Pinion Gear

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

Telescope models from June 2025 no longer include the top cover screw.

TOP / Focuser Draw Tube

- Focuser Draw Tube Tension Screws
 - Please Don't Touch**

- Guider/Finder bracket mounting screws (2.5mm Hex)

Notes

- When operating the telescope with a **motorized focuser**, **do not overtighten the focuser tension**. Excessive tension may damage the focuser mechanism.
- Make small and slow adjustments. Do not turn anything too much at once.

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 STX 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, and avoid rotating any knob beyond a full 360°.
- **Use gentle pressure when turning** — overtightening may affect collimation or introduce unwanted stress.

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

- **Perform adjustments in a stable environment** — wait for your optics and sensor to cool, and avoid large temperature fluctuations during testing.
- **Typical tilt tuning takes 2–4 test exposures.** Final adjustment needs may vary depending on your camera, filters, and backfocus configuration.
- **Tilt does not require frequent adjustment.** Once properly set, it should remain stable unless major components (e.g., camera, tilt plate, or spacing) are changed.
- **Lock the CAA knob before adjusting tilt** to ensure consistent and accurate results.
- **Do not overload the STX adjusters** — keep constant load under 4 kg and impact load under 2 kg to preserve mechanical precision.

Installing EAF

Starting from June 2025, new telescope models no longer include the top cover screw. (Skip Step 2)

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.

On Step 6 & 7:

Please make sure one of the screws is lock on the flat side (D-cut profile)

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.

8. Align the screw holes.

9. Lock the four M4 bracket screws.
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Installing Off-axis Guide System

When installing an off-axis guiding system, the **CAA locking knob** may interfere when rotating the camera. In this case, you can **remove it and use the built-in opposing H2 set screw to secure the lock** instead.

Care & Safety Instructions

Solar Safety Warning

Never point your telescope or finder scope at the Sun **without a proper solar filter securely mounted to the front of the telescope.**

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Even a brief, unfiltered glimpse of the Sun can **permanently damage your eyes or your camera's image sensor.**

Use only **front-mounted solar filters** made by **trusted manufacturers**. These filters must cover the **front of the telescope's dew shield** securely.

Do not use solar eyepiece filters. They are unsafe and can fail under sunlight.

With the correct solar filter in place, you can safely observe and photograph the Sun without damaging your eyes, your camera, or your telescope.

Telescope Care & Storage

To preserve the optical quality and lifespan of your William Optics telescope, please follow these essential care and storage practices:

- **Allow time to acclimate**

After use, let the telescope adjust to room temperature before storage. During this period, keep the optical tube

open and uncovered to allow moisture to evaporate naturally.

- **Ensure dryness**

Make sure the entire telescope is **completely dry**, especially the optics and interior tube, and **free of dew or moisture** before putting it away.

- **Use proper storage conditions**

Store your telescope in a **dry, dust-free environment** with a **stable temperature**. Avoid high heat or humidity. Dehumidifiers or silica gel are recommended for long-term protection.

- **Prevent dust accumulation**

Always place **dust caps** on both ends when not in use, or cover the telescope with a clean plastic sheet if it's not stored in a case.

Following these steps will help maintain optimal performance and prevent damage to sensitive components such as lenses, mirrors, and coatings.

For a detailed cleaning and maintenance guide, please refer to the full article: [Cleaning and Maintenance of Telescopes](#)

Clearance Around WIFD Focuser

To avoid interference between the focuser knobs and the mount, make sure the telescope is properly aligned on the mounting rings.

Loosen the rings slightly and adjust the telescope position so that **both focuser knobs are level and parallel to the mount**.

This ensures sufficient clearance from the saddle plate and prevents accidental contact or obstruction during use.