

Askar FMA180 pro

Askar FMA180 Pro OTA Instruction Manual

Model: FMA180 Pro | Brand: Askar

1. INTRODUCTION

The Askar FMA180 Pro OTA (Optical Tube Assembly) is a high-performance sextuplet air-spaced APO refractor telescope designed for both deep-sky astrophotography and visual astronomy. Featuring a 40mm aperture and a 180mm focal length at f/4.5, this instrument incorporates two ED (Extra-low Dispersion) glass elements to ensure excellent chromatic aberration correction and deliver sharp, clear images. Its compact and robust design makes it a versatile tool for astronomical enthusiasts.

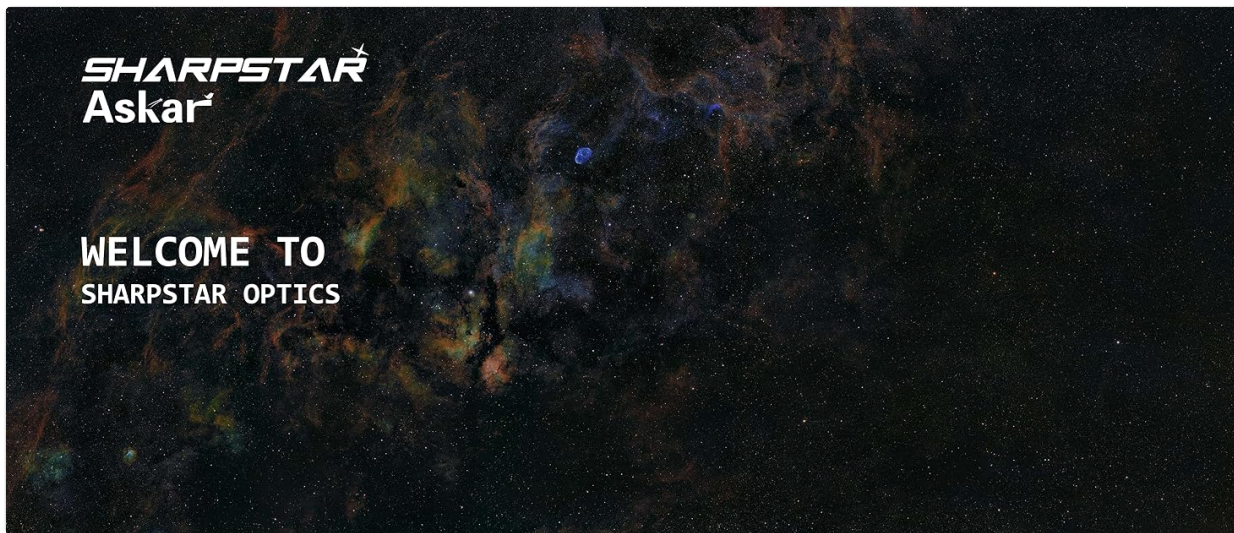


Figure 1: The Askar FMA180 Pro OTA, a compact and high-performance telescope.

2. KEY FEATURES

- **Optical Design:** Sextuplet air-spaced APO design with three lenses in front and three in the rear, including two ED glass elements for superior chromatic aberration correction.
- **Aperture & Focal Length:** 40mm aperture, f/4.5 focal ratio, and 180mm focal length.
- **Astrophotography Optimization:** Features an integrated finder base and a 360° rotator for precise framing and guiding. The internal focusing mechanism enhances stability during long exposures.

- **Versatile Connectivity:** Equipped with an M48 adapter at the rear end, providing a standard 55mm back focus for various camera setups.
- **Multifunctional Base:** The base can be used for astrophotography or detached to mount the OTA onto other telescopes' finder bases as a finder scope.
- **Portable & Durable:** Compact length of 167.5mm and a 40mm aperture size. The entire lens barrel is crafted using high-quality CNC processing technology, with a matte black interior to minimize stray light reflection.

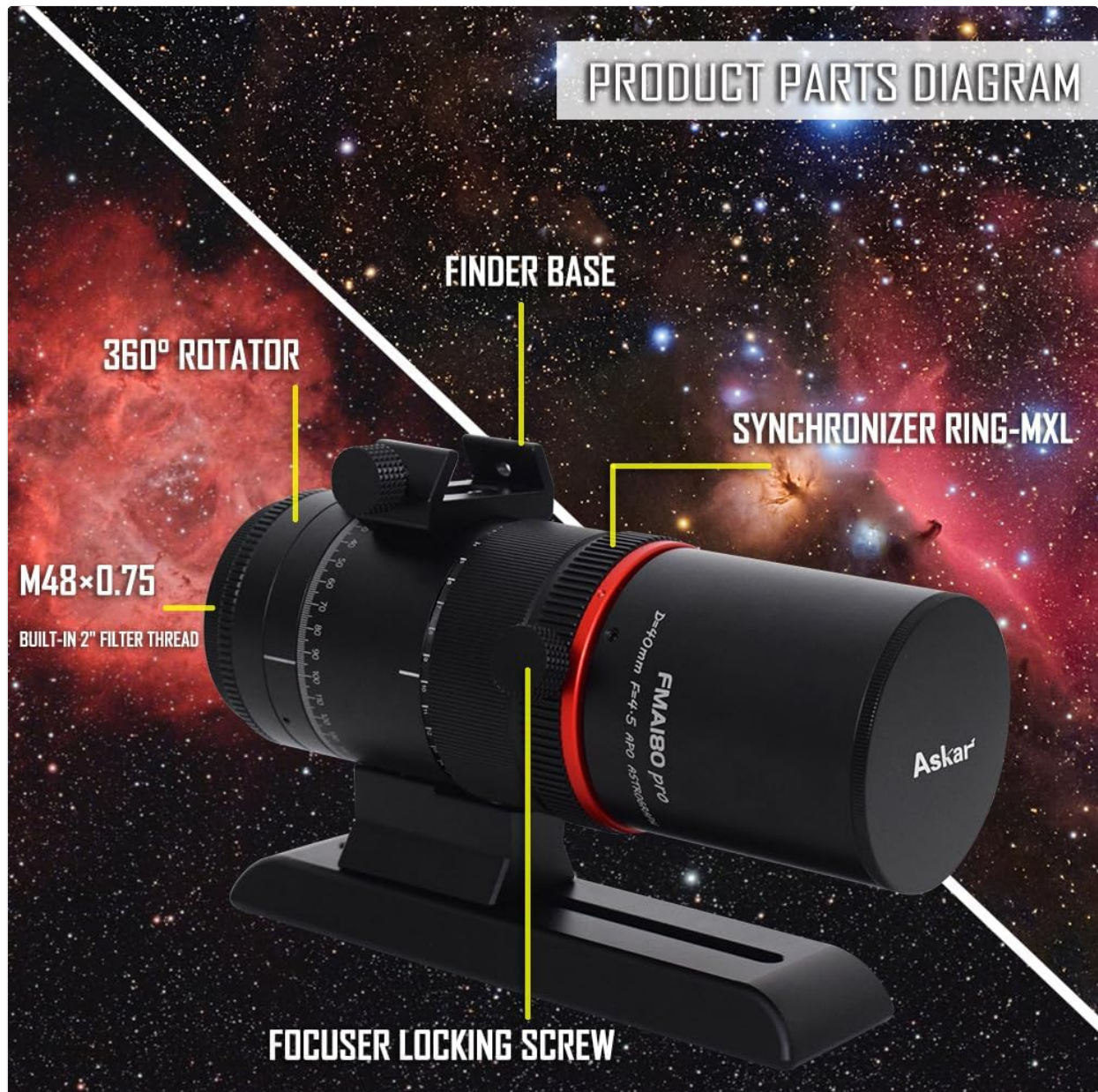


Figure 2: Detailed diagram illustrating the key components of the FMA180 Pro.

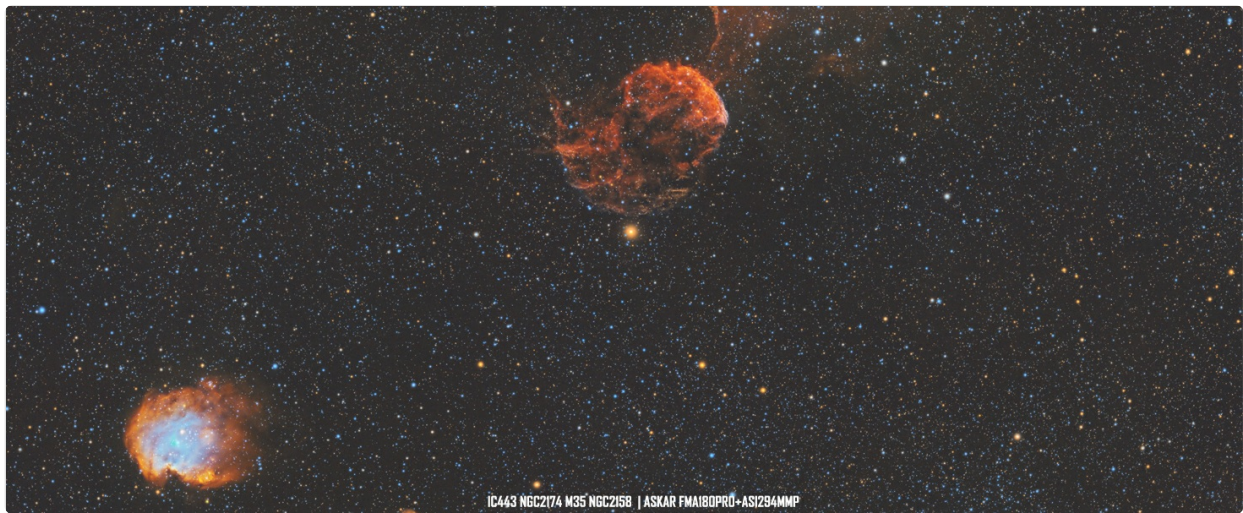


Figure 3: Visual representation of the FMA180 Pro's advantages and features.

3. SETUP

1. **Unpacking:** Carefully remove all components from the packaging. Inspect for any signs of damage.
2. **Mounting the Dovetail Plate:** The FMA180 Pro comes with an upgraded Vixen dovetail plate. Attach this plate securely to your equatorial or alt-azimuth mount. Ensure all screws are tightened to prevent slippage.
3. **Attaching Camera:** Connect your astrophotography camera or DSLR to the M48 adapter at the rear of the OTA. The 55mm back focus is standard for many imaging setups.
4. **Autoguider Setup:** If using an autoguider, mount it onto the integrated finder base. Connect the autoguider camera to your control unit (e.g., ASI Air Mini) via a USB port.
5. **Balancing:** Properly balance the telescope assembly on your mount to ensure smooth tracking and prevent strain on the mount motors.

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Video 1: A detailed guide on setting up the Askar FMA180 Pro for astrophotography, including mounting and connecting accessories.

4. OPERATING INSTRUCTIONS

4.1 Polar Alignment

Accurate polar alignment is crucial for long-exposure astrophotography. Use your mount's polar scope or a dedicated electronic polar alignment routine (e.g., via ASI Air) to align your mount with the celestial pole.

4.2 Focusing

The FMA180 Pro features an internal focusing system. Achieve precise focus by adjusting the focus ring. For astrophotography, it is recommended to use a Bahtinov mask on a bright star to achieve critical focus.

4.3 Target Acquisition (Go-To)

Utilize your mount's Go-To capabilities or a plate-solving application (e.g., via ASI Air) to accurately slew to your desired celestial target. The 360° rotator allows for optimal framing of your object.

4.4 Guiding

Engage your autoguider system to correct for minor tracking errors of your mount during long exposures. Monitor the guiding graph to ensure stable tracking.

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Video 2: A review demonstrating the use of the Askar FMA180 Pro in an astrophotography setup, including polar alignment, focusing, and image capture.

4.5 Image Capture

Once guiding is stable and focus is achieved, begin capturing your light frames. The FMA180 Pro is capable of capturing wide-field images of nebulae and star clusters. Experiment with exposure times and gain settings to achieve optimal results for your target and sky conditions.

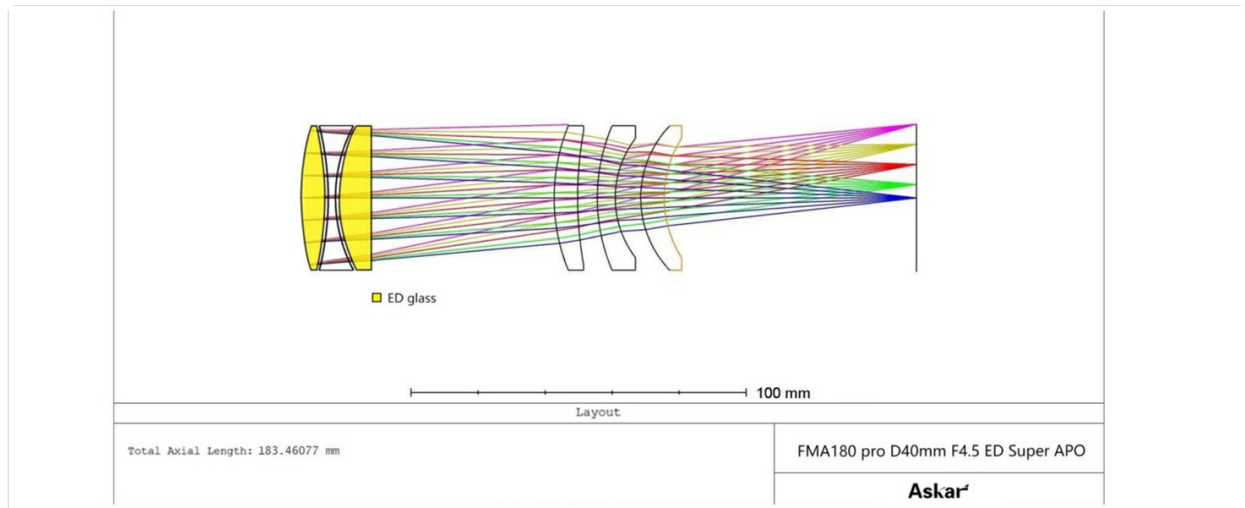


Figure 4: Example astrophotography image of the Rosette Nebula taken with the FMA180 Pro.



Figure 5: Example astrophotography image of the Orion Nebula taken with the FMA180 Pro.

5. MAINTENANCE

- **Cleaning Optics:** Use a soft, lint-free cloth and specialized optical cleaning solution to gently clean the lens surfaces. Avoid touching the optical elements directly with your fingers.
- **Dust Protection:** Always keep the dust caps on the front and rear of the OTA when not in use to prevent dust accumulation.
- **Storage:** Store the telescope in a dry, dust-free environment, preferably in its original case or a padded bag. Avoid extreme temperature fluctuations.

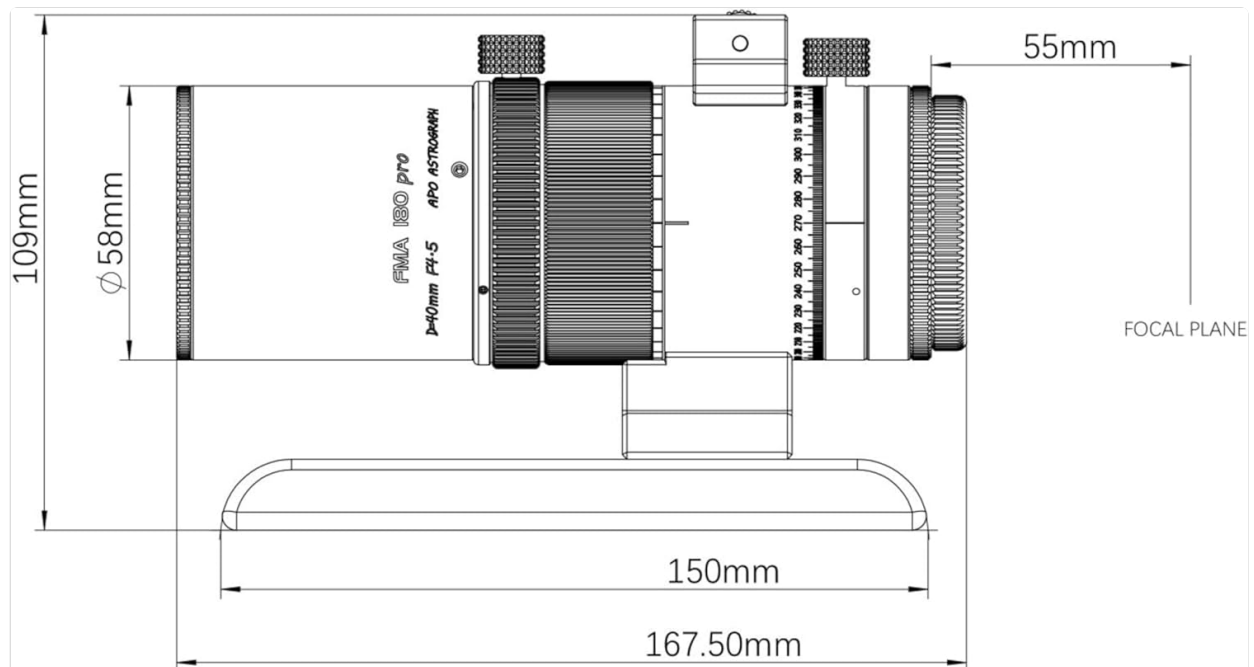
- **Mechanical Inspection:** Periodically check all screws and connections for tightness. Do not overtighten.

6. TROUBLESHOOTING

- **Blurry Images:** Ensure precise focus using a Bahtinov mask. Check for atmospheric seeing conditions. Verify camera back focus is correctly set to 55mm.
- **Star Trailing:** Re-check polar alignment. Ensure mount is properly balanced. Verify autoguider is functioning correctly and calibrated.
- **No Image/Dark Image:** Confirm camera is connected and powered. Check exposure settings (too short exposure or too low gain). Ensure lens caps are removed.
- **Uneven Illumination/Vignetting:** This can sometimes occur with certain camera sensors. Ensure all adapters are correctly seated.

7. SPECIFICATIONS

Feature	Specification
Product Dimensions	9.06 x 6.69 x 4.72 inches (23.01 x 17.00 x 11.99 cm)
Item Weight	2.86 pounds (1.3 Kilograms)
Model Name	FMA180 pro
Objective Lens Diameter	55 Millimeters (Effective aperture 40mm)
Focal Length	180mm
Focal Ratio	f/4.5
Optical Design	Sextuplet Air-Spaced APO (2 ED Glasses)
Focus Type	Manual Focus (Internal)
Finderscope	Reflex (Integrated Finder Base)
Lens Coating Description	Multi-Coated
Compatible Devices	Camera, Laptop



FMA 180 PRO

Figure 6: Dimensional drawing of the FMA180 Pro.

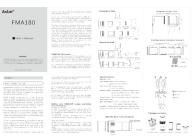

8. WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the official Askar website or contact your authorized dealer. Keep your proof of purchase for any warranty claims.

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Related Documents - FMA180 pro

	<p>Askar FMA180 pro Astrograph User Manual and Specifications</p> <p>Comprehensive user manual for the Askar FMA180 pro 40mm f/4.5 astrograph telescope. Includes detailed specifications, diagrams, connection instructions, and important safety warnings for astrophotography.</p>
	<p>Askar FRA400 F5.6 APO Refractor Astrograph Telescope User Manual</p> <p>Comprehensive user manual for the Askar FRA400 F5.6 APO Refractor Astrograph telescope. Learn about its specifications, features for astrophotography, and optical performance.</p>

	<p>Askar FMA180 User's Manual and Specifications</p> <p>Comprehensive user manual for the Askar FMA180 APO refractor telescope, detailing its features, specifications, usage patterns for astrophotography and observation, and package contents.</p>
	<p>Askar 71F Flat-Field Refractor Telescope User Manual and Specifications</p> <p>Comprehensive user manual for the Askar 71F Flat-Field refractor telescope. Includes detailed specifications, features, assembly diagrams, usage instructions for visual observation and astrophotography, and packaging contents.</p>
	<p>Askar 103 APO Refractor Telescope User Manual</p> <p>Comprehensive user manual for the Askar 103 APO refractor telescope, detailing specifications, features, assembly, and packaging contents. Learn about its 103mm aperture, 700mm focal length, and advanced focuser.</p>
	<p>Askar SQA55 User Manual: Astrophotography and Photography Guide</p> <p>Comprehensive user manual for the Askar SQA55 telescope, detailing its specifications, features, and usage for both astrophotography and general photography. Learn about its quintuplet air-spaced Petzval APO design, dual-speed focuser, and quick-release accessories.</p>