

Heliostar 76mm H-alpha Telescope

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The **Heliostar 76mm H-alpha Solar Telescope** by Sky-Watcher was officially released around March or April 2025. Its launch was strategically timed to align with the lead-up to the solar maximum anticipated that year, making it especially relevant for solar observers and educators.

Heliostar 76mm specs

Feature	Specification
Aperture	76 mm
Focal Length	630 mm
Focal Ratio	f/8.3
Filter Type	Solis Etalon H-alpha filter (native $<0.5 \text{ \AA}$ bandwidth)
Blocking Filter	11.5 mm integrated in diagonal
Eyepiece Included	20 mm (1.25") eyepiece with 70° apparent field of view
Magnification	32x with included eyepiece
Mount Compatibility	Often paired with SolarQuest motorized alt-azimuth mount (HelioFind tracking)
Safety Certification	ISO 12312-2 compliant for safe solar viewing
Smartphone Adapter	Included for solar imaging and sharing
Use Case	Visual observation and imaging of prominences, filaments, sunspots, granulation



Figure 1 – Sky-Watcher **Heliostar 76mm** H-alpha Telescope.

The **Heliostar 76mm** stands out for offering **double-stack performance** without requiring a second etalon (<0.5 Å). That makes it ideal for capturing fine solar surface details and dynamic features like prominences and active regions.

Solis etalon specs

Attribute	Description
Type	Solid-state etalon (non-air-spaced)
Central Wavelength	656.3 nm (Hydrogen-alpha line)
Bandpass Width	<0.50 Å (single-stack performance approaching double-stack quality)
Tuning System	Trifid tuner – allows precise adjustment of the etalon’s passband
Contrast Performance	High contrast for prominences, filaments and surface details
Thermal Stability	Solid etalon design offers improved stability over air-spaced systems
Integration	Built into the OTA; no need for external double-stacking
Safety Compliance	ISO 12312-2 certified for safe solar viewing

Performance or the Solis etalon

- **Double-stack-like contrast:** Despite being a single etalon, its narrow bandpass delivers exceptional detail and contrast, rivalling more complex systems.
- **Trifid tuning:** Enables dynamic adjustment to optimize visibility of different solar features depending on conditions.
- **Uniformity:** Solid etalon design ensures consistent performance across the field of view, minimizing bandpass drift.

The **Solis etalon** is a standout feature of the **Heliostar 76**, making it ideal for both outreach and documentation of solar phenomena—especially during solar maximum.

Operating the **Solis Etalon** on the **Sky-Watcher Heliostar 76mm H-alpha Solar Telescope** involves a few precise steps to optimize contrast and detail in solar features.

1. Initial Setup

- Mount the telescope securely using a compatible solar tracking mount (*e.g.*, **SolarQuest**).
- Attach the **solar zenith prism** and **eyepiece**.
- Ensure the **blocking filter** and **etalon chamber** are clean and properly aligned.

2. Solar Alignment

- Use the **solar guider** (built-in projection system) to centre the Sun.
- Confirm alignment visually through the eyepiece before tuning.

3. Etalon Tuning via Trifid Knob

- Locate the **Trifid tuning knob** near the etalon chamber.
- Slowly rotate the knob while observing the solar disc:
 - **Clockwise** or **counterclockwise** adjustments shift the passband slightly.
 - Fine-tune until **maximum contrast** is achieved—filaments, prominences and surface details should appear sharp and well-defined.

4. Environmental Considerations

- Allow the telescope to **thermally stabilize** for **~15-30 minutes** if moving between environments.
- The solid etalon is less sensitive to temperature drift than air-spaced designs, but ambient heat can still affect contrast.

5. Observation Tips

- Re-tune periodically as solar features evolve or seeing conditions change.
- For imaging, tune for **maximum limb contrast** if capturing prominences, or **surface detail** for filaments and sunspots.

Heliostar 76mm vs Lunt LS60THa Pressure-Tuned – Comparison Table

Feature	Heliostar 76mm	Lunt LS60THa (Pressure-Tuned)
Aperture	76 mm	60 mm
Focal Length	630 mm	500 mm
Focal Ratio	f/8.3	f/8.3
Etalon Type	Solid-state Solis Etalon	Air-spaced Etalon with Pressure Tuning
Tuning Mechanism	Trifid tuner (rotational)	Pressure tuning (internal air pressure adjustment)
Bandpass Width	<0.5 Å (single stack)	~0.7 Å (single-stack); narrower with double-stack
Contrast Performance	High; comparable to double stack	Excellent; enhanced with optional double-stack
Blocking Filter	Integrated 11.5 mm diagonal	B600 or B1200 options (external)
Mount Compatibility	SolarQuest or manual alt-az	Manual or motorized mounts
Thermal Stability	Good; requires ~30 min warm-up	Excellent; pressure tuning minimizes drift
Imaging Suitability	Strong for close-ups and full disc (with mosaics)	Strong for full disc and close-up imaging
Visual Use	Optimized for outreach and detail	Excellent for visual and imaging
Price Range (2025)	~€2600	~€4000 (with B1200)

1. The **Heliostar 76mm** offers excellent contrast in a single-stack configuration, but some users report variability across the solar disc unless mosaics are used.
2. The **Lunt LS60THa** is more expensive but provides consistent performance and easier full-disc imaging due to pressure tuning and field uniformity.
3. For outreach and educational documentation, the Heliostar may offer better value, while the Lunt excels in precision and modularity.



Figure 2 – Sky-Watcher **Heliostar 76mm** H-alpha Telescope.



Figure 3 – Sky-Watcher **Heliostar 76mm** H-alpha Telescope.



Figure 4 – **Solis Etalon**, Heliostar 76mm H-alpha Telescope.



Figure 5 – **Solar finder**, Heliostar 76mm H-alpha Telescope.

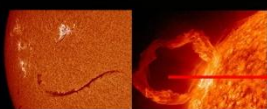
HELIOSTAR 76H α



This Prominence telescope uses multiple technologies to protect human eye during observation, including an infrared thermal ray reflection film, a special filter to block heat, and a filter to block UV light from entering, blocking stray light that affects observation.



The prominence telescope uses a combination of front and rear filters to allow only monochromatic light with a wavelength of 656.28 nanometers emitted by hydrogen atoms to pass through, while blocking other light with different wavelengths. This allows the observation of quite active prominences in the H- α band.



Prominences , flares

Optical diameter	Focal length	Focal ratio	Bandwidth	Weight	Length	Solar image Size
76mm	630mm	F/8.3	< 0.5Å	3.8kg	600mm	6mm

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Figure 6 – Sky-Watcher Heliostar 76mm H-alpha Telescope.



Figure 7 – Sky-Watcher Heliostar 76mm H-alpha Telescope (**first light**).

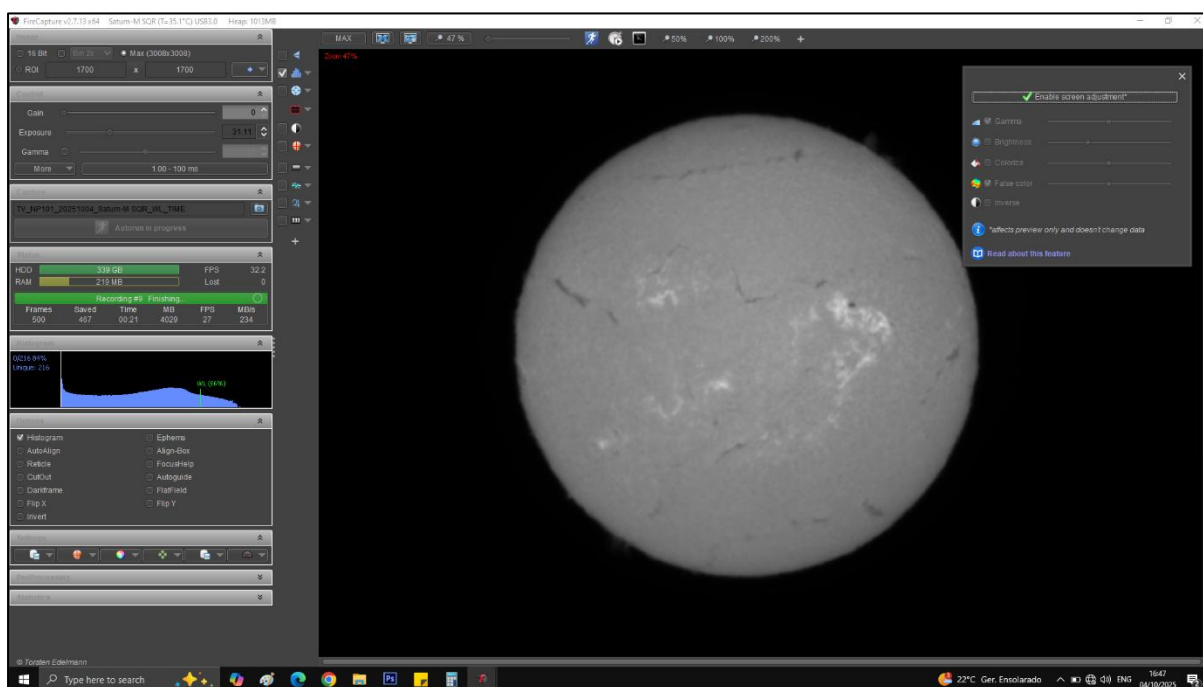


Figure 8 – Sky-Watcher Heliostar 76mm H-alpha Telescope (**first light**)
Player One Saturn-M SQR (20251005).

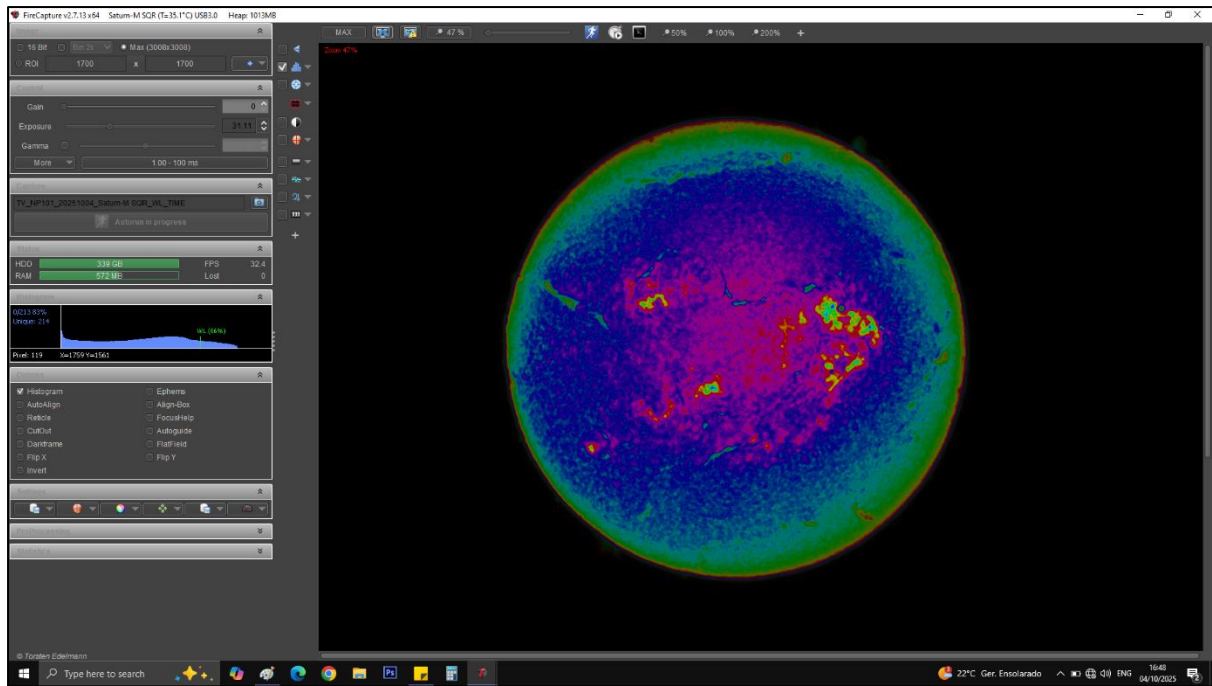


Figure 9 – Sky-Watcher Heliostar 76mm H-alpha Telescope **(first light)**
Player One Saturn-M SQR (20251005).

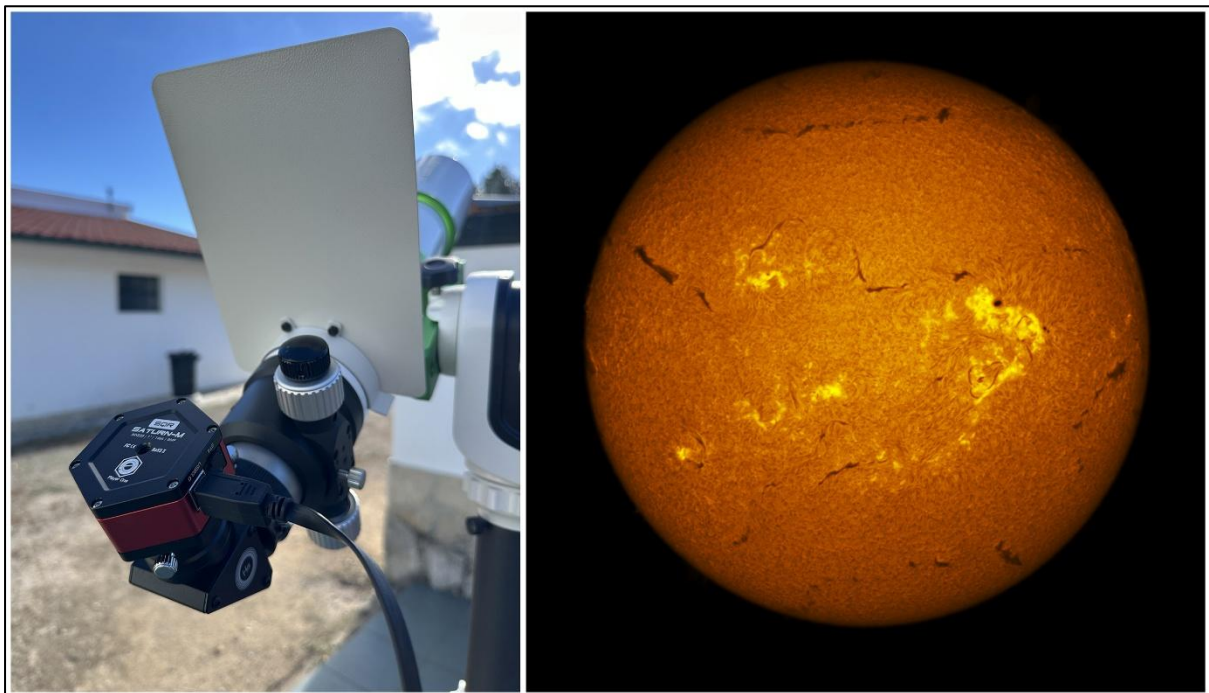


Figure 10 – Sky-Watcher Heliostar 76mm H-alpha Telescope **(first light)**
Player One Saturn-M SQR (20251005).