LUNT LS60THa “Doppler True Tuning” Solarscope

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MANUFACTURERS INFORMATION

Not listed on the Web Site yet.

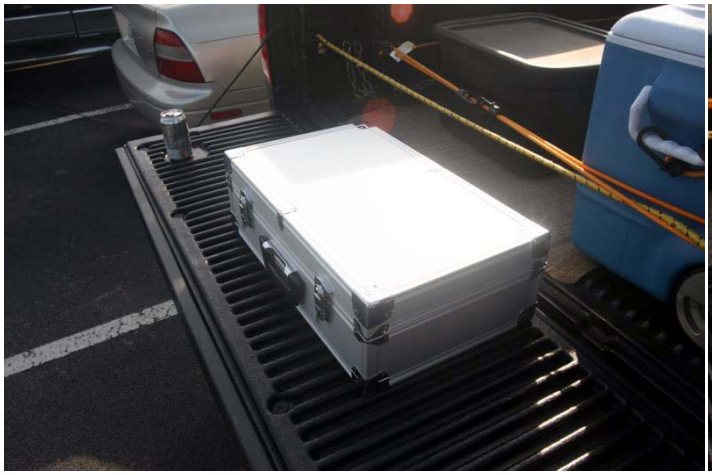
This scope cost approximately $1400 at the Northeast Astronomy Forum in 2009

I am not sure how they price or package it but I purchased mine with the scope, a B1200 Blocking Filter, Televue SolSearcher and case. I understand that the air tuning is available both as an add on or new order for an additional $449

More info may be updated soon at www.luntsolarsystems.com

REVIEW

The LUNT scope came in a large box well secured with packing foam and tape. Inside was this standard LUNT LS60THa metal case.



The case has 2 locking metal latches and reinforced corners. It is very sturdy and very roomy.

Inside the case was the LUNT Scope, B1200 Blocking Filter, a LUNT Zoom eyepiece (added at purchase), a warranty card and a little pamphlet of information about Halpha.

The case had PLENTY of extra room for the 2nd etalon and a few eyepieces or mounting rail. Unfortunately it still doesn't have enough vertical room to put the scope in it with the mounting rail and Sol Searcher attached. I have had to modify each of my LUNT and Coronado cases to allow for quicker storage fully assembled. The hole shown in the top of the below case was added by me. Even with this hole, the sol searcher still touches the metal top of the case when closed with no padding. I would suggest a couple of more inches in height for this case as I also had to cut out a similar hole in the bottom for the 2 inch mounting rail. There would be no chance to put the scope in this case with rings attached if you chose to mount it this way.

- The LUNT scope has from left to right:
- 2 inch B1200 Blocking Filter with a 1 ¼ eyepiece holder
- Brass compression ring leading into the focuser drawtube
- LUNT standard Crayford style 10:1 focuser
- Attractive red trim surrounding the internal etalon chamber
- The Doppler True Tuning adjustment grip
- Standard LUNT clamshell mount with 3 ¼ 20 holes.
- Televue Sol Searcher
- Standard LUNT white OTA with a 60mm objective
- A screw on metal lens cap with LUNT cactus logo

It is a very attractive scope. LUNT has changed some minor cosmetics of this scope since the first ones and I believe that they add a more professional and “legit” look.

As you can see in this next picture the etalon assembly is housed directly under the red metal band and close to the focuser assembly. There is no center obstruction.

Now, on to the Doppler True Tuning System, I purchased this scope directly from Andy Lunt and had it explained to me at NEAF. According to Andy the internal 35mm etalon is housed in an airtight container which contains a collimating lens, 2 air spaced etalon surfaces and finally a refocusing lens. The etalon is surrounded on all sides by a barometric chamber.

The current tilt wheel tuners simply tilt the etalon surfaces in order to go from centerline of the Halpha wavelength to +.4 A of the centerline. This allows the etalon to detect certain Doppler affected phenomena on the surface of the Sun. The new LUNT exclusive Doppler True Tuning system uses no internal moving surfaces. The air surrounding the etalon is simply compressed or decompressed in order to change the air pressure between the surfaces. This allows the etalon surfaces to always remain at the same perfect angle to the light waves but changes the diffractive index of the air in the chamber and thus accomplishes the same tuning except that it goes + or - .4 A on either side of the centerline. The system is so simple yet so effective

as a tuning mechanism. The etalon never stresses and there are no springs or wheels to bind or get sticky.

(100mm LUNT system shown in pictures)

The user simply unscrews the rubber seal off of the brass air housing when they set it up to allow for the ambient air pressure to fill the chamber. Then you screw on the rubber sealed adjustment wheel to change the air pressure inside the etalon assembly. It will allow for a 3-4 psi change to the air pressure thus allowing for super precise tuning. It will also not increase or decrease the air pressure enough to cause any stress on

the etalon so there is no chance of over tightening it. The system is rated at up to 12,000 feet MSL and down to -500 feet MSL.

The tuning system is a breeze to operate and it feels quite secure when you use it. I like the feeling of a little more control over the entire scope by gripping the compressor while I am looking through the eyepiece. It is a very cool setup.

I set the scope up on a CGE mount using a Pinnacle portable pier with an ADM three way scope mounting rail. I also had a DS Coronado 90mm scope and a LUNT CaK 60mm scope there for comparison and photography purposes.

The sky conditions were 6 out of 10 in my opinion with a high cirrus layer and about 15 knots wind from the West.

I used LUNT zoom eyepieces in all of the scopes as they are my favorites now.

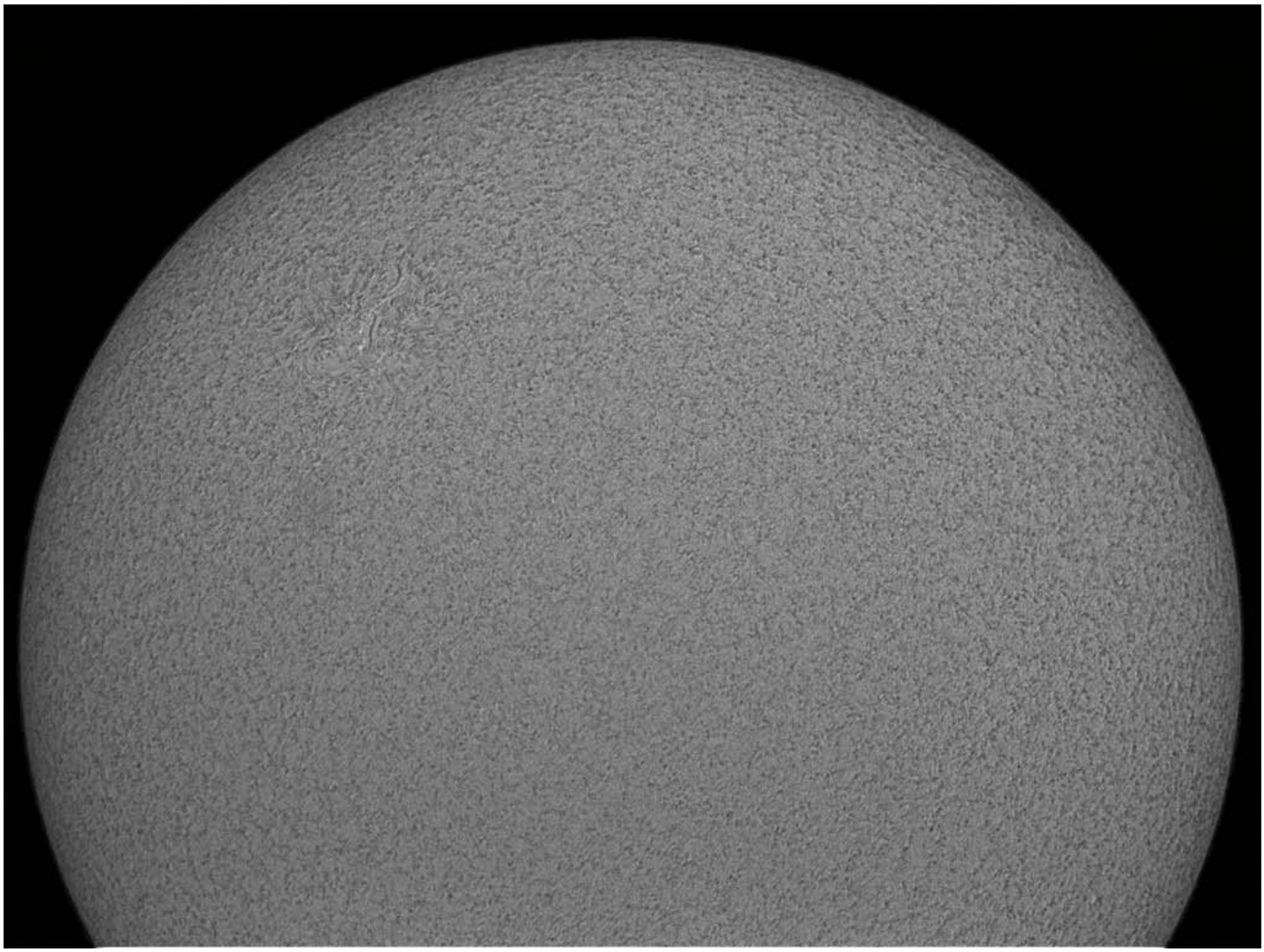
I unscrewed the air chamber cap and then put it back on and started looking. About 3/5 of the way down the threads, “snap!” the entire disk came on band at the same moment. It was awesome. There was a red non-descript ball at first and then after about 4 turns the disk came alive with details and prominences. The tuner went so slowly and precisely through every minute adjustment that I felt sort of like I was using a 10:1 tuner. It was very stable and held its place perfectly every time.

Visually this scope had an exceptionally bright and even image with a surprising amount of surface detail for a single etalon .7A scope. The proms and filaments were crisp and clear and just jumped out at you. The Zoom eyepiece easily focused at any magnification and it was a pleasure to sit back and watch the solar show on a warm springtime afternoon in GA.

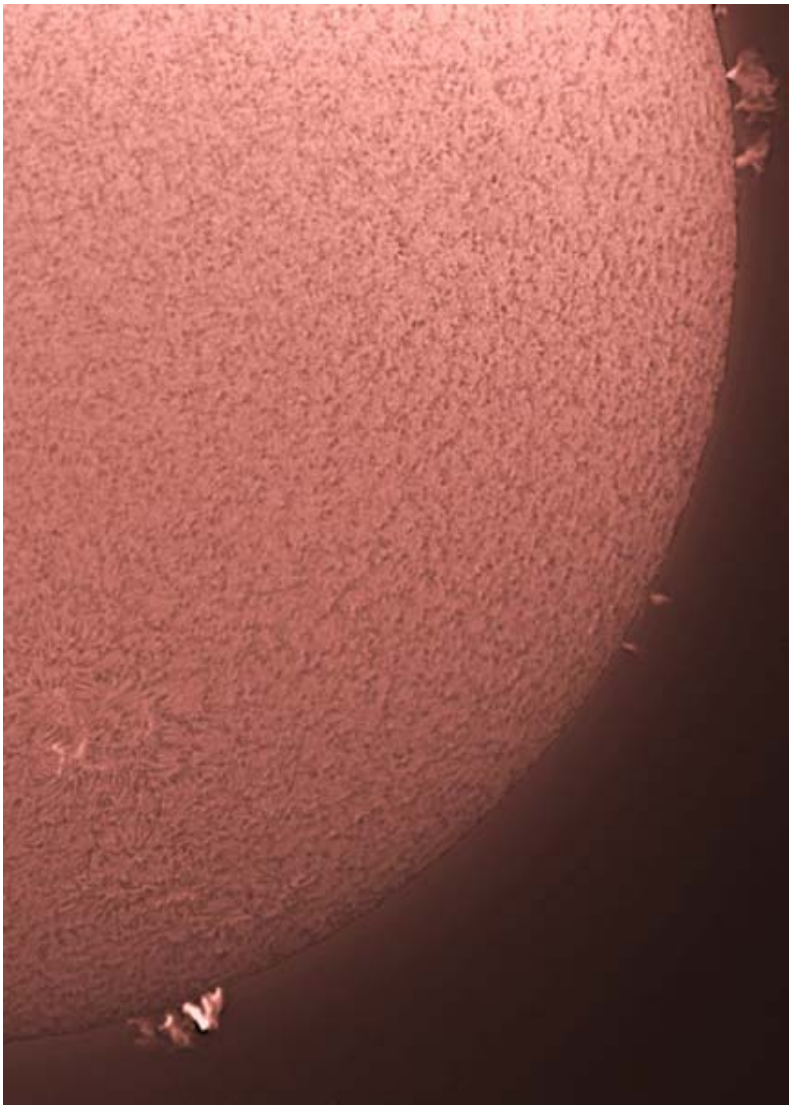
I would say that the view visually was far beyond any PST I had used before and slightly less detailed than my single stacked 90mm Coronado. The background was much darker and crisper in this scope than in any of my Coronados. The LUNT was a little more contrasted than the Coronado MS60 in my opinion and had a far easier to use tuner and focuser at almost half the price of the Coronado MS60.

The LUNT scope performed very well visually and photographically throughout several hours of temperature changes and differing conditions.

I attached a DMK31 Monochrome camera to the diagonal and took a few pictures. The below is a single frame snapshot from the IC capture software supplied with the camera set on very short exposure to capture surface details. It was very impressive for a single etalon system.



This next photo is a stacked image from 300 frames for surface and 300 for proms. It was processed using Corel Photo Paint. Even with the high cirrus layer the prominences are sharply outlined and the surface features are easy to see.



THE BOTTOM LINE

The LUNT Doppler True Tuning system adds a new dimension to an already fine scope. This telescope is a great value in Halpha observing and the service from LUNT has been second to none so far.

I would strongly recommend this telescope to any astronomer who is looking to get into solar astrophotography with a real scope at a value price. Excellent work LUNT SOLAR SYSTEMS!

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