

Astronomy tests Coronado's SolarMax II Telescope

This compact Hydrogen-alpha scope will enhance your observing as solar maximum approaches. **by Mike Reynolds**

With solar maximum — the peak of activity in the Sun's 11-year cycle — rapidly approaching, observers are spending more time viewing our daytime star. Any telescope with a properly filtered optical system will allow you to see the Sun in the relatively broad spectral range of visible light. However, for an exquisite view of our star, a dedicated narrowband filter lets you explore details such as active solar regions and prominences.

The primary narrowband filter amateur astronomers use for solar observing is the Hydrogen-alpha (H α). It only transmits light with a wavelength of 656.28 nanometers — the H α line. For this review, I tested an excellent solar telescope you should consider if you would like to observe in H α : the SolarMax II 60 Telescope by Coronado, a subsidiary of Meade Instruments.

What makes it tick?

Coronado's SolarMax II 60 Telescope is part of a new line of H α telescopes and filters introduced in August 2010. This refractor features 2.4 inches (60 millimeters) of aperture, a focal length of 400mm, and a focal ratio of f/6.7.

Its filter is a two-piece, full-aperture etalon — an optical interferometer that bounces light between two partially reflective mirrors. The etalon sits in front of the 60mm objective. The central wavelength of the light it transmits is the H α line, and the width of the transmitted light is 0.7 angstrom (Å; 1 angstrom = 0.1 nanometer).

With this scope, Coronado also introduced its RichView system, which works by letting you tune the etalon. Tuning allows you to slightly adjust the central wavelength of the transmitted light. Altering it slightly one way or the other provides for the right combination of viewing either prominences



This lever controls the tunable etalon in the SolarMax II. It tilts the front filter stack and thus moves the center of the 0.7-angstrom transmission band. One setting will provide a good view of the Sun's prominences, while another will show surface details better.

or features in the solar chromosphere. When the telescope is not in use, a threaded metal cover protects the objective and the etalon.

The SolarMax II system includes a blocking (energy-rejection) filter, the 0.7Å etalon, a diagonal, a 25mm Coronado Cemax eyepiece specifically designed for use with the telescope, mounting rings, and a Sol Ranger solar finder scope.

Believe it or not, finding the Sun safely can pose a challenge. I usually first roughly align the telescope toward the Sun and move it until it casts the smallest shadow. At that point, I transition to a special finder scope like the Sol Ranger.

The SolarMax II also comes with a hard-sided carry case suitable for travel as well as storage. Taking the instrument out of the case, I immediately noted its beautiful brass

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tube and black finish. A dovetail mounting plate connected to two clamshell rings made it simple for me to attach the scope to my German equatorial mount.

Observing and more

After attaching the diagonal and the 25mm eyepiece, I was ready to observe the Sun. The drawtube moves back and forth in the optical tube, which allows for easy rough focusing. I then used the telescope's helical focuser for fine focusing, and my first reaction was "What a view!"

Surface details were easy to discern, and I viewed several prominences along the Sun's edge. Those features appeared

structured, especially with slight focus adjustments and by tuning the telescope's etalon via the SolarMax II's RichView lever.

In addition to Coronado's Cemax eyepiece, I used my personal zoom eyepiece, a medium-priced unit that varies its focal length from 25mm to 7mm. I was pleased with the views, and the ability to zoom in and out on solar features without changing eyepieces sure saved time.

In addition to observing, I also enjoy astroimaging, so I wanted to try shooting through the SolarMax II. Because the diagonal contains the scope's blocking filter, it needed to stay. I had to connect my camera, a Canon EOS 20Da, to it.

The camera is somewhat bulky compared to the telescope, so it made for an awkward combination. With a bit of finagling, I was able to take some decent images. Coronado does produce a 30mm "straight-through" blocking filter. Although pricey (\$1,599), I highly recommend this option for those interested in solar imaging through this telescope.

The Coronado SolarMax II 60 Telescope is available in a number of optional configurations. You can get 5mm, 10mm, and 15mm blocking filters (for telescopes of increasing focal lengths) and even a double-stack etalon. That option reduces the normal bandwidth of the telescope from 0.7Å to 0.5Å, which increases the visibility of certain solar features.



The front of the SolarMax II functions as an energy-rejection pre-filter. This red-tinted glass eliminates the Sun's ultraviolet and infrared radiation and most of the visible light.

Coronado's SolarMax II 60 Telescope is a Hydrogen-alpha telescope. Unlike a visible-light solar filter, which can show sunspots, the SolarMax II's filter reveals prominences, flares, and the Sun's chromosphere.

Product information

Coronado SolarMax II 60 Telescope

Type: Hydrogen-alpha telescope
Aperture: 2.4 inches (60 millimeters)
Focal length: 400 millimeters
Focal ratio: f/6.7
Bandwidth: 0.7 angstrom
Includes: Blocking filter, 25mm Coronado Cemax eyepiece, mounting rings, hard-sided carry case, and a Sol Ranger finder scope
Price: \$1,299 (with a 5mm blocking filter); \$1,499 (10mm blocking filter); \$1,649 (15mm blocking filter)
Contact:
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 Irvine, California 92618
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What a view!

Frankly, solar viewing through a "white-light" filter gives an observer just a peek at the Sun's majesty. Observing in other bandwidths such as H α , however, provides such a dramatic look at our star that you might find yourself at the eyepiece for hours on every clear day. The Coronado SolarMax II 60 Telescope is a superb choice if you want to upgrade to a dramatic view of the Sun. ☽



The SolarMax II comes in a sturdy foam-lined travel case that holds the telescope with its diagonal attached. It also has room for several eyepieces. All images: *Astronomy*: William Zuback