The Orion hydrogen-alpha filter is intended exclusively for imaging purposes. The human eye is too insensitive to the far-red region of the spectrum for it to be useful for visual use. The Orion hydrogen-alpha filter is a cutoff filter designed for a wide variety of imaging applications. The filter transmits over 90% of the light at the critical hydrogen-alpha wavelength (656.3nm). This wavelength corresponds with the hydrogen-alpha light emission produced by certain types of nebulae. When the hydrogen-alpha filter is coupled to a camera (digital or film) and used to image one of these nebulae, contrast will be greatly increased.

The hydrogen-alpha filter rejects all visible light with a wavelength below 640nm. Because of this, it should be used only to image nebulae with strong hydrogen-alpha emission, such as the California and Rosette Nebulas. Broad emission objects, such as stars and galaxies, will become much dimmer when the filter is employed.

**Using the Hydrogen-Alph Filter**

To use the hydrogen-alpha filter, you will need a camera that can accept 1.25" threaded filters. The filter is compatible with all Orion StarShoot™ imaging cameras, and most other digital (CCD and CMOS) astronomical imaging cameras. Simply thread the filter onto the camera’s 1.25" barrel until it is finger tight. Then place the camera into the telescope and bring it into focus as normal.

For film cameras, you may need to employ a 1.25" Universal Camera Adapter to attach the filter. This part is available from Orion. You will not be able to use the filter with a direct camera T-ring connection to a telescope.

Since the Orion hydrogen-alpha filter is a cutoff filter, it also passes infrared light. The filter was designed this way in order to be useful for the widest variety of applications. If your camera/telescope setup is sensitive to infrared light, then we suggest stacking an infrared (IR) cutoff filter onto the hydrogen-alpha filter. Otherwise, the increase in image contrast may not be as high as it could be. Bloated star images may also result. Many astronomical CCD cameras are sensitive to the infrared region of the spectrum, but these will usually have a built-in or external IR cutoff filter. Also, refractors will be more sensitive to infrared light than reflectors and other telescopes that utilize mirrors.

Of course, if you wish to image the infrared emissions of nebulae, use the hydrogen-alpha filter with no IR cutoff filter through a...
refractor for best results. You’ll be amazed at the new detail you’ll see!

**Storage and Cleaning**

When not in use, the hydrogen-alpha filter should be kept in its plastic case. Given proper care and storage, the filter will last a lifetime.

Any quality optical lens cleaning tissue and optical lens cleaning fluid specifically designed for multi-coated optics can be used to clean the glass surfaces of your filter. Never use regular glass cleaner or cleaning fluid designed for eyeglasses.

Before cleaning with fluid and tissue, blow any loose particles off the surfaces of the filter with a blower bulb or compressed air. Then apply some cleaning fluid to a tissue, never directly on the optics. Wipe the lens gently in a circular motion, then remove any excess fluid with a fresh lens tissue. Oily fingerprints and smudges may be removed using this method. Use caution; rubbing too hard may cause scratches.

This graph shows the typical light transmission through the Orion hydrogen-alpha filter. Note that the filter only passes visible light with a wavelength above 640nm. All other wavelengths are essentially blocked. Transmission is greatest at 656.3nm, which is the hydrogen-alpha emission wavelength.