

## Orion® Extra Narrowband Sulfur-II Imaging Filter, 2"

#5546

The Orion Extra Narrowband Sulfur-II (S-II) Imaging 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. This imaging filter is a line filter designed for specific imaging applications. The filter transmits over 90% of the light at the critical S-II wavelength (672.4nm). This wavelength corresponds with the S-II light emission produced by certain types of nebulae. When the S-II filter is coupled to an imaging camera and used to image one of these nebulae, contrast will be greatly increased.

The Sulfur-II filter rejects all visible light with a wavelength below 660nm and above 685nm (FWHM bandwidth approximately 7nm). Because of this, it should be used only to image nebulae with strong S-II emission, such as the Bubble and Cone Nebulas. Broad emission objects, such as stars and galaxies, will become much dimmer when the filter is employed.

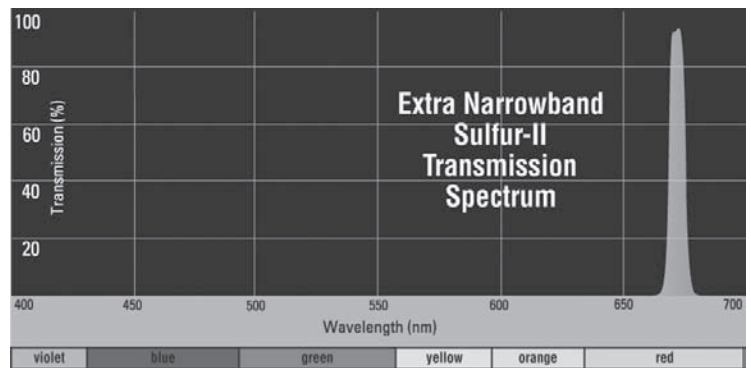
The extra narrowband S-II imaging filter blocks infrared (IR) and ultra-violet (UV) wavelength light. The filter has been designed this way in order to provide the highest transmission of S-II light without the contaminating effects of IR and UV light, which can reduce image contrast and lead to bloated star images.

### Using the Extra Narrowband Sulfur-II Filter

To use the extra narrowband Sulfur-II filter, you will need a camera that can accept 2" 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 2" barrel until it is finger tight. Then place the camera into the telescope and bring it into focus as normal.

For digital SLR cameras, you may need to employ a 2" 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.

For most convenient use of the extra narrowband S-II imaging filter we recommend the 2" Orion Multiple Filter Wheel or the Nautilus Motorized Filter Wheel. The filter wheel is especially useful if you wish to image an object through multiple filters separately. The filter wheel allows you to quickly change the filter in the light path without the sometimes frustrating process of removing the imaging system from



This graph shows the typical light transmission through the Orion S-II filter. Note that the filter only passes visible light with wavelengths between 660nm and 685nm with a full width half maximum value of approximately 7nm. All other wavelengths are essentially blocked. Transmission is greatest at 672.4nm, which is the S-II emission wavelength.

the telescope every time a different filter is needed. To use the extra narrowband S-II imaging filter with the filter wheel, simply thread a filter into the filter wheel tray as described in the wheel's instruction manual. You can now switch between filters by rotating the knurled edge of the wheel. Contact Orion Customer Service/Sales at 800-676-1343 for details.

When using an extra narrowband filter, a longer exposure is typically required to obtain enough light to create an image with an adequate amount of brightness. This is due to the relatively large amount of light the filter has been designed to block in order to isolate the S-II wavelength.

### Storage and Cleaning

When not in use, the extra narrowband Sulfur-II imaging 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.