

Orion® Extra Narrowband Oxygen-III Imaging Filter, 2"

#5545

The Orion Extra Narrowband Oxygen-III (O-III) Imaging Filter is a line filter designed for specific imaging applications. The filter transmits over 90% of the light at the critical O-III wavelength (500.7nm). This wavelength corresponds with the O-III light emission produced by certain types of nebulae. When the O-III filter is coupled to an imaging camera and used to image one of these nebulae, contrast will be greatly increased.

The Oxygen-III filter rejects all visible light with a wavelength below 485nm and above 515nm (FWHM bandwidth approximately 7nm). Because of this, it should be used only to image nebulae with strong O-III emission, such as the Dumbell and Veil Nebulas. Broad emission objects, such as stars and galaxies, will become much dimmer when the filter is employed.

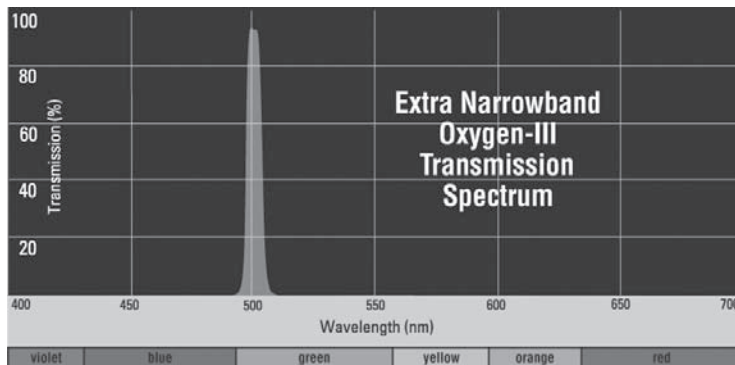
The extra narrowband O-III imaging filter blocks infrared (IR) and ultraviolet (UV) wavelength light. The filter has been designed this way in order to provide the highest transmission of O-III light without the contaminating effects of IR and UV light, which can reduce image contrast and lead to bloated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

Using the Extra Narrowband Oxygen-III Filter

To use the extra narrowband Oxygen-III 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 O-III 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 the telescope every time a different filter is needed. To use the extra narrowband O-III imaging filter with the filter wheel, simply thread a



This graph shows the typical light transmission through the Orion Oxygen-III filter. Note that the filter only passes visible light with wavelengths between 485nm and 515nm with a full width half maximum value of approximately 7nm. All other wavelengths are essentially blocked. Transmission is greatest at 500.7nm, which is the Oxygen-III emission wavelength.

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 O-III wavelength.

Storage and Cleaning

When not in use, the extra narrowband Oxygen-III 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.