Text Summary

Filters for Deep Sky Astrophotography

1. Do I need a filter?

If you own a stock DSLR or a “ha-modded” DSLR: no. If you own a full spectrum DSLR or full spectrum astro camera: yes, you need a UV/IR Cut filter. Even if you don’t technically need a filter, you still may want one. The purpose of light pollution filters and narrowband filters is pretty much the same thing to increase contrast between the sky and the deep sky object (typically an emission nebula) by blocking terrestrial sources of light. Narrowband filters are more effective at this task because they block 95-99% of terrestrial light sources. I do NOT advise buying a filter before you buy a star tracker or equatorial mount.

2. Where does the filter go?

If you own a DSLR, the most versatile type of filter is a clip-in filter that you simply push in to the camera body right in front of the sensor. These can be used with any lens or telescope. If the filter you want is not available as a “clip-in”, the next best option for DSLRs is typically 2” which will have M48 threads and work with many telescopes, field flatteners, and coma correctors. Putting the filter in front of the lens or telescope is usually not the best option since the filter would have to be very large (and expensive) to avoid vignetting. The popular 1.25” filter size will only work with Micro 4/3 sensors and smaller, and only if positioned close (<10mm) to the image sensor. If you have a dedicated mono astronomy camera, a completely enclosed motorized filter wheel is strongly encouraged.

3. What filter should I get?

This depends largely on your goals, camera, and budget. For the new astrophotographer with a stock DSLR that just wants to experiment with their first light pollution filter, I’d recommend a gentle Neodymium filter that will improve contrast, especially for emission nebulae, but won’t dramatically change star color or make color correction difficult.

4. I live in Bortle X, should I get a light pollution filter?

Very hard to say without knowing the types of streetlights your town or city uses, how close you are to large light domes, etc. Stay tuned for tests I will be conducting comparing the effectiveness of light pollution filters under both Bortle 9 (city) and Bortle 4 (rural) skies.