

## Using and Caring for IDAS LPS-P1 Filters

Thank you for purchasing the IDAS LPS-P1 filter. Please follow the procedures below to insure long life for your filter.

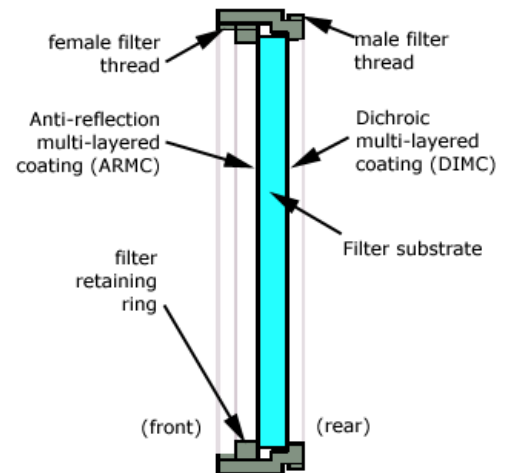
### Installation on Camera Lenses

When using the LPS-P1 filter on the outside of a camera lens, orient it so that the rear of the filter (see diagram) is facing towards the camera lens. This places the more durable side of the filter on the outside.

### Installation Inside Telescopes

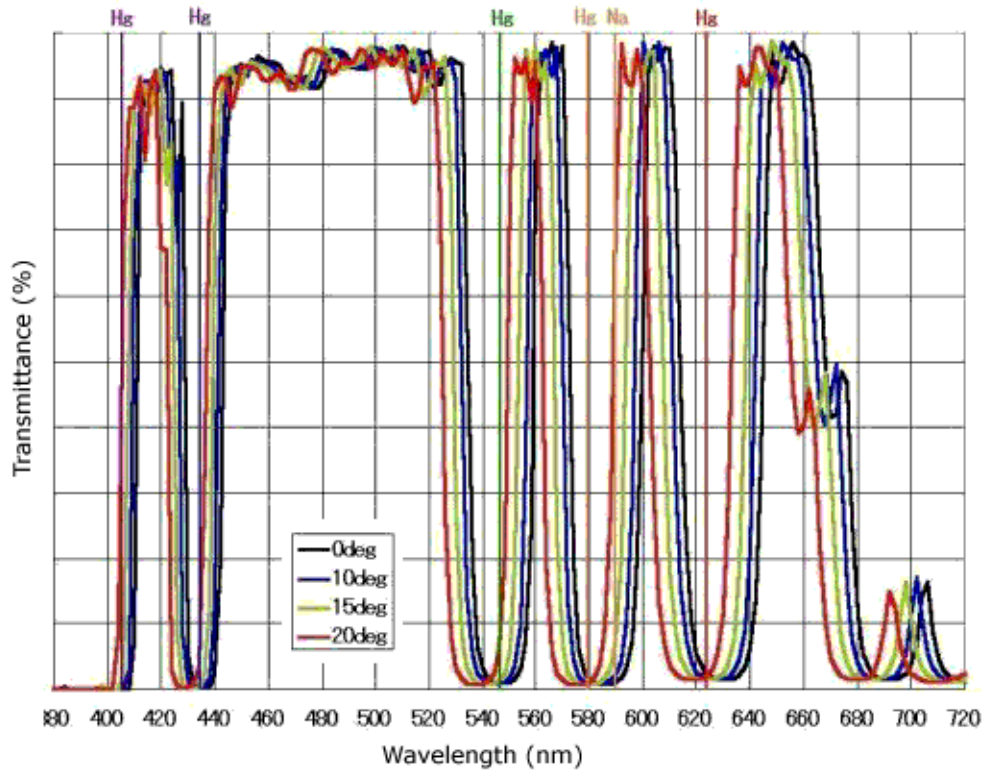
When the LPS-P1 filter will be used inside an optical system such as a telescope or some telephoto lenses, the orientation does not matter. The filter characteristics are the same no matter which way light passes through the filter.

However, when used with low cost telescopes which are typically not fully multicoated (i.e. not multicoated on all internal surfaces), some internal reflections may be seen. In this case, place the filter as far away as possible from other optical components (e.g. field flatteners, compressors, and other filters) of the system. Note that because the LPS-P1 filter includes the ARMC layer, no spurious reflections will be caused by the filter itself.



## Using the LPS-P1 Filter

The LPS-P1 filter is a thin-layered interference filter. The spectral characteristics of this type of filter depend on the angles of incidence of the incoming light as shown in the plot below. When the incidence angle exceeds 25 to 30 degrees, the LPS-P1 bandpasses are shifted enough to become ineffective in blocking light pollution emission lines. It is suggested that the incidence angle be kept below 15 degrees when production lot variations are taken into consideration. In practice, this means that the LPS-P1 should not be used with wide-angle camera lenses.



## Cleaning

The front surface of the LPS-P1 filter is an anti-reflection multi-layered coating (ARMC) which is also known simply as a multi-coating (MC). The rear surface is a dichroic multi-layered coating (DIMC) in which the filter spectral characteristics are implemented. Both the ARMC and DIMC consist of metal oxides or metal fluorides hard-coated dielectrically. But the DIMC is physically more vulnerable to bumps or scratches, so additional care should be exercised especially when cleaning or handling the DIMC surface.

To clean the filter surfaces, use an air blower to gently blow away dust, especially abrasive sand particles. Then a silicone lens cleaning cloth may be used to lightly wipe the filter. Cleaning paper impregnated with lens cleaning fluid may also be used to slowly and gently wipe the filter surfaces.