SOLAR SPECTRUM
ADVANCED GRADE FILTER

The Advanced Solar Observer (ASO) and Research Grade filters are high quality, narrow and ultranarrow bandpass filters for observing the solar chromosphere. The ASO is for the advanced amateur or college level observer. The Research Grade is for when the highest uniformity and ultra narrow filter are required.

The filters are based on 38mm optics and have a 32 clear aperture (C.A.). The filters are mounted in a precision Thermoelectric controlled oven (TEC). The advantage of the TEC oven is that it has the ability to regulate the temperature, or wavelength, of the filter by either heating or cooling as needed. Telescopes with 60mm or larger apertures have to contend with the extra energy that the sun is adding to the filter. With a standard oven, the controller only operates to the heating set point. Above the set point the controller is simply off. The extra energy from the sun will drive the band pass into the red wing and off of the H-alpha absorption line. The temperature controller will accept a wide range of input voltages: 85 – 265 volts A.C. This will allow it to be used almost anywhere in the world.

Advanced Solar Observer (ASO) and Research Grade filters are designed for use with telescopes with f25 or longer that are equipped with an energy reduction filter (ERF). These ultra-narrow filters will work poorly with Barlow lens systems. They are more suited to off-axis telescopes with the right wedge plate, or Telecentric systems. Research grad Filters are available in 46 mm clear aperture on special demand.

ASO filters are grouped into four bandwidths, all of which are capable of observing broad band features like prominences and flares, but are narrow enough to observe the solar chromosphere.

Deciding which bandpass to choose depends on what your primary interests are. The broader filter (0.8) is a good choice for general viewing; with this filter you have the capability of seeing the active areas and filaments on the solar disk.
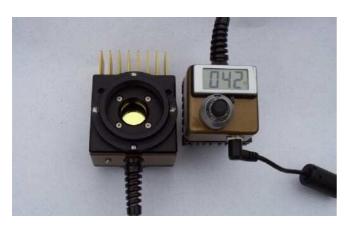
The midrange filter (6.5) will give you more contrast on the disk, but still allows superior views of prominences.

The narrower filter (0.5) will give you even higher contrast on the solar disk features while allowing the fine structure in the prominences to be observed.

The ultra-narrow filters (0.3) and under will give views of the sun which were previously only available to the professional observer. At bandwidths under 0.3, the prominences will become three-dimensional and features that were barely visible at 0.5 ang. will show large amount of detail.

Research Grade filters with their ultra-narrow bandwidths and high uniformity will meet the requirements of the serious researcher.

SOLAR OBSERVER Series 1 & 1.5

Solar Observer series (SO) are narrow bandpass solar filters with the amateur solar astronomer in mind. These filters will provide excellent H-alpha viewing of the sun's chromospere. The SO is housed in a low voltage temperature controlled TEC oven with tuning. The oven operates at 12 volts D.C. A cable is provided with the filter that allows the use of a 12-volt car battery for field use. It also comes with a power supply with a wide range of input voltages: 85 – 265 volts AC, and 12volt D.C. output. This will allow the filter to be used almost anywhere in the world. These filters have a 19mm clear aperture (C.A.). The SO is designed for telescopes with apertures of 60mm or less. The

telescope will need to be used at F/25 or longer. At this F.L., the solar image will fit nicely through the filter. The SO is also a good choice for video and CCD cameras, where only a small area of the field is being use.

SO 1.5 has a 25mm clear aperture (C.A.). This filter will allow view full disk of the sun with scopes up to 3.5" at F/30. The filters are grouped into three bandwidths, all of which are capable of observing broad band features like prominences and flares, but are narrow enough to observe the solar chromosphere. Deciding which bandpass to choose depends on what your primary interests are. The broader filter (.65ang) is a good choice for general viewing; with this filter you have the capability of seeing the active areas and filaments on the solar disk.

The narrow filter (0.5ang) will give you more contrast on the disk, but still allow superior views of prominences.
The ultra narrow filters (0.3ang) and under, is for when the maximum contrast is desired for the solar disk features. The prominences will become three dimensional as they arch over the limb. These bandwidths were previously only available to the professional observer.

Prices please see separate pricelist.

ATTENTION:

No Fabry-Perot-Solar-Filter must be subjected to "freeze all though".

The warranty may be void if damages are found to be a result of freezing.

Such an elaborate filter is calibrated to be used at a certain working temperature.
The immersion oil which enables the large stack of Polarizers and optical elements to perform as one solid block of glass, free of internal reflections, may become "greasy".

As a result, the crystallizing liquid increases it's volume and forces optical surfaces within the optical stack to become apart, so that air can creep between the optical elements. The coatings applied to the 1/200 lambda plane etalen as well as the polarizers are subjected to enormous stress which can lead to forced aging.
At all times when any H-alpha Filter is not in use, it should be stored in a dry environment within a temperature rage between +4°C to 36°C.
A dry box with including a generous pack of silica gel or zeolite is recommended.

IMPORTANT NOTE concerning the correct handling of extreme narrowband < 1 Ans Fabry-Perot-Filters:

- **do not store below +4°C, since filter damage and loss of warranty may result**
- **do not heat optical stack above 100°C, since filter damage and loss of warranty may result.**
- **only use in combination with objective mounted IR-blocking ERF-front window (i.e. Baader D-ERF Filter)**
- **When not in use, store in a dry box with Silica Gel or equivalent dessicant**
- **store at room temperature, do not subject filter to freeze**

BAADER PLANETARIUM GMBH

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