

FVA-UV Fiber Optic Variable Attenuator

The **FVA-UV FIBER OPTIC VARIABLE ATTENUATOR** is an opto-mechanical device that controls the amount of light entering the optical bench of the spectrometer. Each end of the attenuator has SMA 905 terminations for connecting the attenuator to light sources, sample holders, and fibers. The FVA-UV attenuates light uniformly at all wavelengths.

Application Tips

- ◆ The attenuator can be used for applications where more light reaches the spectrometer than likely can be digitized successfully by the spectrometer's high-sensitivity linear CCD-array detector. Some absorbance experiments may also require signal attenuation, as too much light can saturate the reference measurement.
- ◆ In some instances, detector saturation can be avoided by adjusting (through software) the spectrometer integration time to limit the interval during which the detector collects light -- somewhat akin to changing the shutter speed on a camera to a faster exposure time. Other options include using different gratings, changing the optical bench entrance aperture (by installing slits or using small-diameter optical fibers), or adding neutral-density filters to the optical path. The FVA-UV fits in where these intensity-reduction techniques are either unworkable or undesirable.

Operation

- ◆ The attenuator comes with two collimating lenses, one screwed in at each side. The thumb wheel position is held with the set screw.
- ◆ A 6-32 white nylon screw pinches the mechanical adjustment wheel. Loosening the white nylon screw allows the mechanical adjustment wheel to be turned. When the wheel is positioned to your liking, tighten the white nylon screw to keep the wheel in place during your measurement. The wheel is placed between two Teflon washers to provide smooth operation and is knurled along the edge for fingertip gripping.
- ◆ To completely close the attenuator, turn the wheel to the white line marking and tighten the white nylon screw.

Using the Adapters

With the FVA-ADP-UV and FVA-ADP-VIS, users can connect the attenuator directly to any light source having a collimating lens at its aperture. To use these adapters, follow these steps:

1. Use an Allen wrench to loosen the set screw of one of the collimating lenses on the attenuator and take out the inner barrel.
2. Slip in the adapter and tighten the set screw.
3. Loosen the set screw on the collimating lens of the light source. Remove the inner barrel of the lens and slide the adapter/attenuator into the collimating lens. Tighten the set screw.

Specifications

Dimensions:	1.5" x 1.5" x 1.0"
Assembly ports:	3/8-24 threads for collimating lenses
Adjustment wheel:	diameter = 3/32" material = black anodized aluminum with knurled edge
Adjustment wheel lock:	6-32 Nylon thumb screw
Connector:	SMA 905