Laser Attenuator

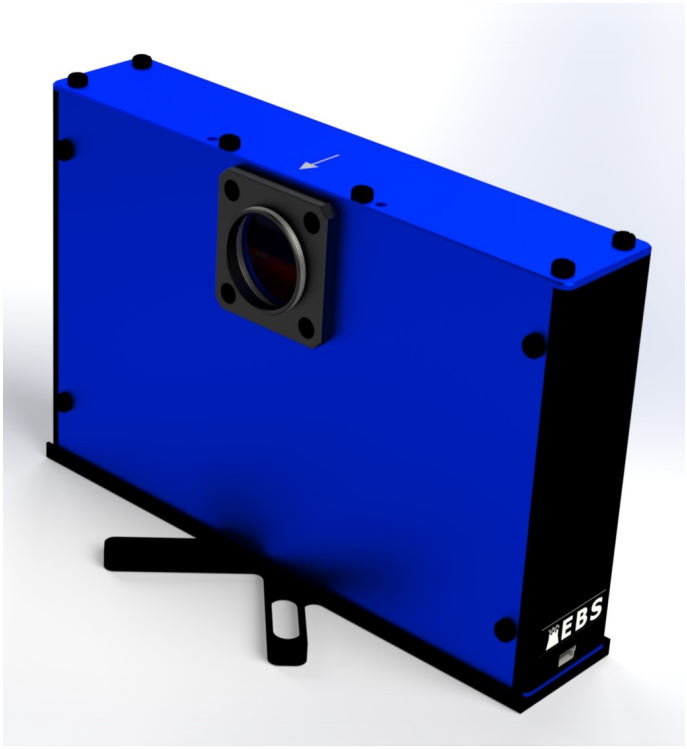
What is The Laser Attenuator?

The newly developed **Laser Attenuator** allows computer controlled attenuation of a monochromatic light source from 1-99% (see Figure 1) within the wavelength region ~550-1000nm.

The **Laser Attenuator** incorporates technology derived from a joint collaboration between EBS and DOTF.

The LOMA uses a wedge thin film coating design to control the intensity or power of the transmitted laser beam.

The **Laser Attenuator** allows user control of attenuation by combining the LOMA with a linear drive, control electronics and dedicated software to allow safe, repeatable, real time control of the attenuation.



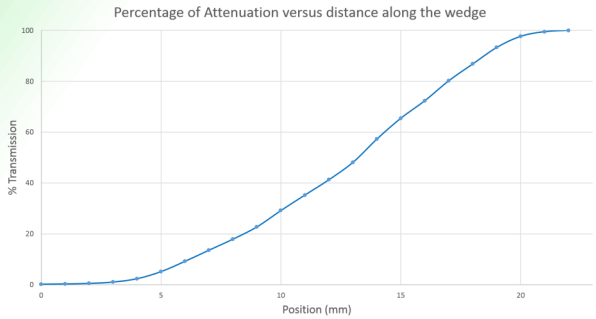


Figure 1 - Attenuation

Technology

Linear Variable Filter: constructed from wedged optical thin film coatings, whose spectral properties vary nearly linearly along the length of the filter. It is possible to adjust the position of the edge wavelength by sliding the filter with respect to the incident light. The LOMA makes use of this property using a customised version of an LVF design with a designed gradual edge between full transmission and full attenuation.

Product Specifications

- **USB—controlled**
- **Small design (173 x 109 x 35 mm; 400g)**
- **Laser attenuation range: 1% to 99%**
- **Wavelength range ~550 – 1000 nm**
- **No pulse broadening even with femtosecond lasers**
- **High laser damage threshold**
- **Durable filter and robust shell**

Major benefit: Unlike other designs which work by absorption, the LOMA is based on optical thin film coating technology which works by reflection. This allows the LOMA to withstand high laser power since it attenuates the laser with no absorption of the input power. The laser beam is transmitted without distortion of the beam profile, with no extra optics required. Even with short laser pulses down to 70 fs; no pulse broadening is observed. The optical coating is designed for a wide range of laser wavelengths between 550 and 1000 nm and works independent of polarisation.

Safety: The rejected power is dumped by reflection within the unit. The LOMA is contained within a compact housing equipped with adjustable mountings and is very simple to operate.

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