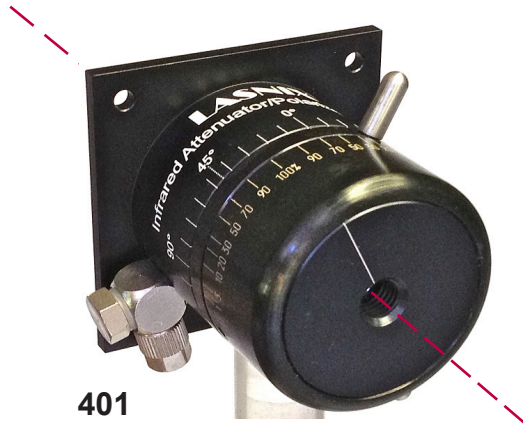


## CONTINUOUSLY VARIABLE ATTENUATORS for CO<sub>2</sub> LASER BEAMS



401

The continuously variable attenuator precisely controls power **and** polarization of a transmitted CO<sub>2</sub> laser beam. The other beam parameters such as alignment stay unaffected. The instrument contains two rotatable grid polarizers in a compact housing. It can be used alone or directly mounted on a CO<sub>2</sub> laser.

Both grids rotate smoothly and independently. Direct, calibrated scales serve two different purposes:

- (i) rotating the first grid attenuates the transmitted power down to four orders of magnitude, while keeping the polarization direction constant;
- (ii) rotating the second grid sets the polarization direction of the transmitted beam at an arbitrary angle, independent of the input polarization.

The design principle is based on proprietary free-standing metal grid technology introduced by Lasnix in 1984. Since the polarizer grids are freely suspended, i.e. have no substrate, they can not offset the beam in contrast to common substrate-bound optical elements.

The polarized transmitted beam passes undeviated even at the upper power limit. The mode structure and other beam properties, including the divergence and M<sup>2</sup> parameters are fully preserved.

The specified power limit applies to relatively wide beams which fill at least half the specified aperture area in a smooth manner. This corresponds to a fundamental mode with a 1/e<sup>2</sup> beam width of about 4 mm. For narrower beams the power limit scales down. For example, the limit reduces to 12 W when the 1/e<sup>2</sup> width narrows from 4 to 2 mm.

The attenuator can be mounted on a laser by four 3.2 mm holes on a 57 mm circle. For mounting a thread M8 is provided at the base. We supply a transition post with thread 1/4-20 if requested. The angular alignment within the clear aperture is uncritical. Cooling water is necessary only when the input power exceeds 5 W.

### A p p l i c a t i o n s :

- power setting over four decades
- polarization setting

#### beam quality guarantee:

- angular beam deviation ..... < 5 μrad
- wavefront distortion ..... < 1/100 λ
- beam offset ..... < 1 μm
- mode distortion ..... < 0.2 db

Model No.	Wavelength Range	Transmittance @ orientation		Power Limit	Fluence Limit	Clear Aperture	Length	Height	Weight
	μm		⊥						
401	9.8-10.4	> 0.6	< 0.00006	30	1	6	46	50	200
	9.2-10.8	> 0.4	< 0.00006						

For ordering write or call

[www.lasnix.com](http://www.lasnix.com)

**LASNIX**  
Sonnenweg 32  
82335 Berg  
Germany

Phone: +49 (0) 8151 953036  
Fax: +49 (0) 91130844 88883  
Email: [info@lasnix.com](mailto:info@lasnix.com)