

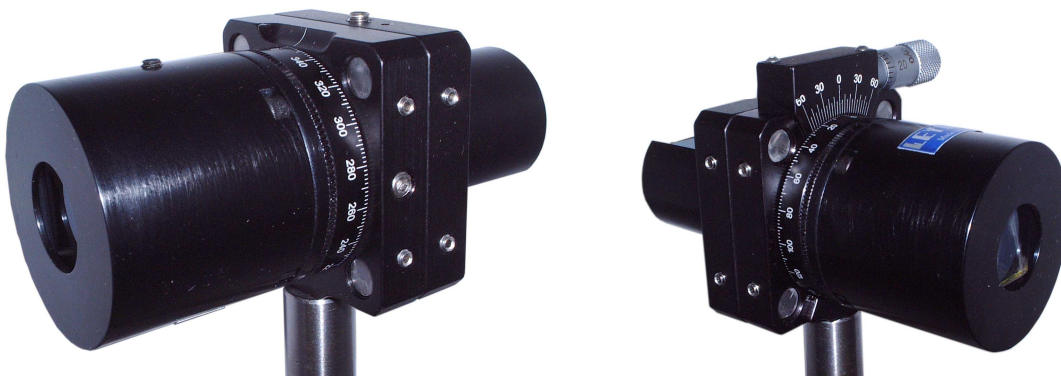
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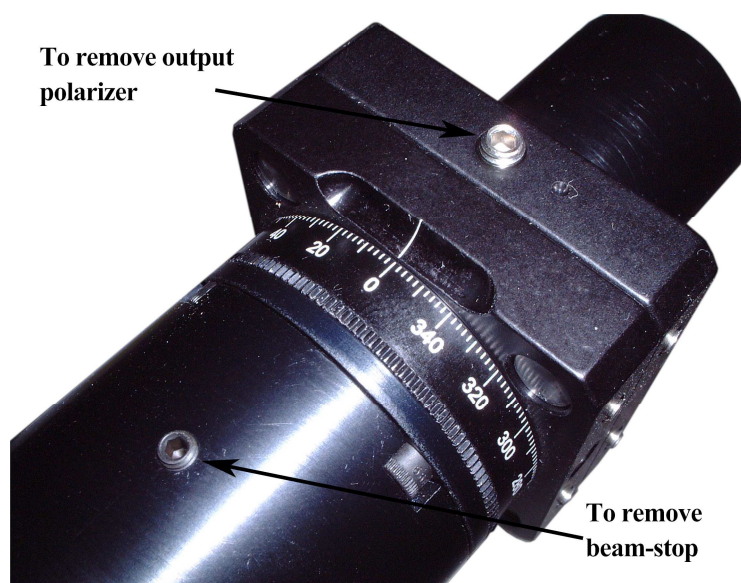
HIGH POWER LASER ATTENUATOR

This optical attenuator can be used at wavelengths between 0.3 - 1.5 μ , depending on the choice of optical coatings (if any). Maximum continuous rating is 100W/cm² and peak power handling is up to 500MW/cm² for q-switched pulses around 1 μ m. The attenuator can be mounted using a 4mm threaded rod. A tapped mounting holes is provided for this purpose.

The attenuator consists of two air-spaced Glan-Taylor calcite polarizers for which the relative axes of maximum transmission may be mis-aligned by the rotation of one polarizer. There are two versions of the attenuator, the standard rotator provides a hand control of rotation only whilst the precision version adds to this an additional fine pitch rotation control via a micrometer adjustment screw.



With the 0 - 90° scale set at 0°, maximum transmission is achieved and this is approximately 90% at the peak of the AR coating response. With the scale set at 90° attenuation is total with the energy being dumped out at the two escape windows.

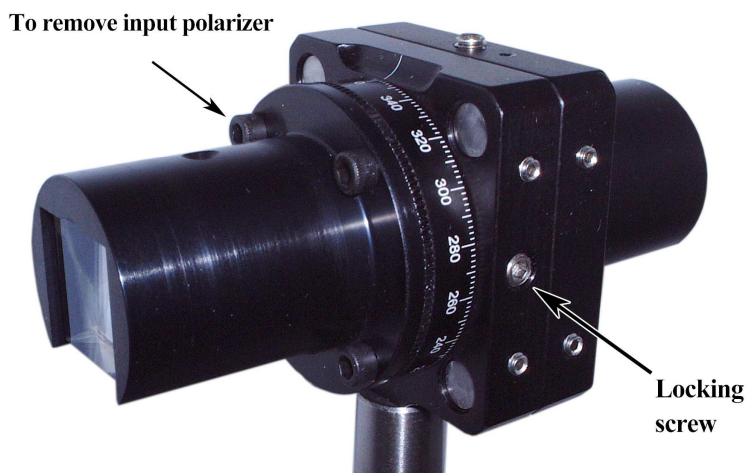


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This behaviour can be changed by adjusting the relative angles of the polarizers. Light is always input on the side with the rotating polarizer. The output polarizer is set by default with its side exit face to reject the beam downwards. The default output polarization is therefore vertical. To remove the output polarizer, loosen the indicated set-screw and rotate to suit required output polarization angle.

The input polarizer is accessed by first removing the beam stop. The indicated set screw should be loosened until the stop slides cleanly off the polarizer mount. When replacing ensure that screw locates with indent in polarizer mount. The input polarizer is held in one of four set positions as shown in the following view with beam stop removed.



A beam stop is provided over the input escape window at the input end which rotates during adjustment of the attenuator settings, dumping up to 10W (5W at each escape window). If more than 5W cw is to be dumped by the input polarizer then the cover plate should be removed and the emerging beam trapped by a suitable absorbing block. The cover plate cannot be used to dump q-switched pulses that are likely to vaporise on the surface. **Care must be taken (especially when using infra-red beams which are not visible to the naked eye) to always make sure that the rejected beam energy is safely terminated.**

The polarisers used can be cleaned on the internal faces by removing each polarizer mount as described above. Do not over-tighten the lock screw as this can lead to damage of the polarizers. Clean by lightly drawing a lens tissue wetted with alcohol across the coated faces. Do not allow liquids to enter the polariser interface.

To enable the micrometer control on the precision units the locking screw must be engaged. Do not over-tighten the rotation locking mechanism on the side of the rotation unit on either the standard or precision units. This is unnecessary and may cause damage to the mechanism.