Motorized Continuously Variable Attenuator

User's Manual

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Description of the unit

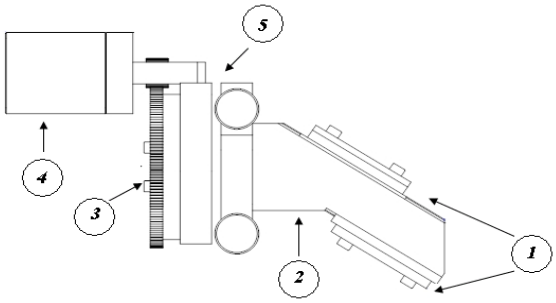
Thank you for choosing our production!

Motorized Continuously Variable Attenuator with Brewster type thin film polarizers

Motorized Continuously Variable Attenuator for High Power applications is the Altechna Co. Ltd. automated laser power attenuation solution. This device is controlled from PC via USB interface. Motorized attenuator can be used as stand-alone device as well as integrated in your custom design system.

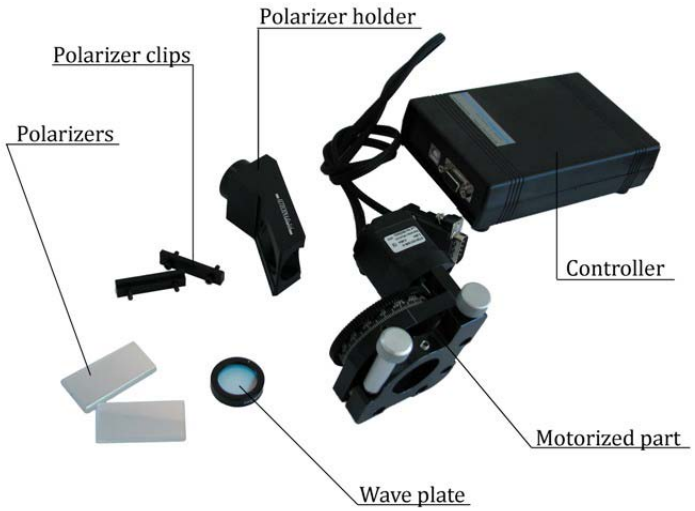
The variable attenuator/beamsplitter incorporates 2 high-performance Brewster type polarizers, which reflect s-polarized light while transmitting p-polarized light.

These two Brewster type polarizers are housed in special design opto-mechanical Adapter. A rotating Phase retardation of λ/2 Waveplate is placed in the incident polarized laser beam. The intensity ratio of those two beams may be continuously varied without alteration of other beam parameters by rotating the waveplate. The intensity of either exit beam, or their intensity ratio, can be controlled over a wide dynamic range. P-polarization could be selected for maximum transmission, or high-purity s-polarization could be reflected when maximum attenuation of the transmitted beam takes place.



1. Brewster Type Thin Film Polarizers
2. Adapter For Polarizers
3. Zero Order L/2 Phase Retardation Waveplate
4. Microstep Motor
5. Adjustable Polarizer Holder

What's inside the box?



- Two Brewster Type Thin Film Polarizers
- Zero Order L/2 Phase Retardation waveplate
- Adapter For Polarizers
- Adjustable Polarizer Holder
- Control Unit
- Software (not included in the picture)
- USB Cable (not included in the picture)

Assembling

Attenuator assembly is a simple and fast operation. Just follow these steps and it will take only a few minutes to adjust a device.

1. Attenuator consists of two mechanical parts. Use fixing screw for tightening both parts together (Fig. 1 & 2).

Fig. 1. Assemble the mechanical part of attenuator.

Fig. 2. Fix the screw tightly

2. Put wave plate into attenuator. Use mounting ring to tighten wave plate (Fig. 3).

Fig. 3. Put in the wave plate

3. Place polarizers into adapter. **Please note** that clips for polarizers have different depth grooves on both sides. This allows mounting polarizers of different thickness (Fig. 4). Polarizers must face each other with surfaces coated with polarizing coating. Polarizing coating is marked with an arrow, so you have to put the polarizers with the arrows on the sides **facing each other the clips** (Fig 5.)**.**

Fig. 4. Place the polarizer clips. (**Please note** that in this picture the left polarizer clip is fixed for thicker polarizers and the right polarizer clip is fixed for thinner polarizers.)

Fig. 5. Place the polarizers and fix them with the clips. (**Please note** that arrows on the sides of polarizers must face each other)

4. Connect attenuator to the controller box and Connect controller box to PC via USB cable.

5. Launch ***AttSetup.exe*** program to install control program (if you didn't have Windows Framework installed, you will be prompted to do that. You can download it from Microsoft web page automatically or, alternatively, you can find a copy in this CD (file ***dotnetfix.exe***))

6. When the software is installed you can launch the controller program. For detailed instructions read ***AttManual.pdf file.****

Troubleshooting

What to do if the controller software does not detect attenuator hardware?
A. Right click **My Computer** → **Properties** → **Hardware** → **Device Manager** → **Ports (COM & LPT)**. Find a port **called USB Serial Port** in the list (Attenuator controller box must be connected to PC). Remember the number of this port (e.g. COM9). Now open attenuator control software menu **Configuration** and check if the serial port set correctly.