LEAD Fiber Optics
PRODUCT CATALOGUE

FIBER OPTIC ATTENUATOR
MANUAL VOA
Manual VOA

Manual variable optical attenuator (Manual VOA) can be used for power control and equalization for WDMs, FTTx, CATV and Test & Measurement instruments. It is a device designed to attenuate an intensity or power level of an input optical beam in a controlled manner to produce an output optical beam with different attenuated intensities.

**Mechanical Variable Micro-Optics type attenuator** uses a mechanical method to produce attenuation. Typically light is coupled out of the fiber using a collimator lens and a precision screw mechanism blocks a portion of the light before it is coupled back in to the fiber.

**Mechanical variable Air Gap type attenuator** utilizes an air gap between the ends of two fibers to attenuate the transmission signal. Attenuation can be adjusted by means of self-locking screw mechanism.

We provide stable performance over wide temperature and wavelength ranges manual variable optical attenuator. They have low insertion loss and high resolution/repeatability. In addition, its compact design is excellent for mounting on panel. Specific type of fiber connector can be built on each end.
**Mechanical Variable Micro-Optics type Attenuator**

Mechanical Variable Micro-Optics type attenuator utilizes miniature collimator structures to achieve continuous, accurate and variable optical attenuation in a wide spectrum. It uses a mechanical method to produce attenuation, and it is an useful tool for the optical components and system test.

**Mechanical Variable Air Gap type Attenuator**

Mechanical variable Air Gap type attenuator includes a rotatable actuator and cam arrangement arranged to vary a length of an air gap between ends of fibers in a transmission line. Its compact design is excellent for mounting on panel. Specific type of connector can be built on each end.
Mechanical Variable Micro-Optics Type Attenuator

Features
- Environmentally stable
- Easy installation
- Wide attenuation Range
- Low return loss
- Compact packaging
- Readily panel mountable
- Custom designed specifications

Applications
- Fiber communication on system test
- Optical passive component test
- Optical lab use

Specifications

<table>
<thead>
<tr>
<th>ITEM</th>
<th>VALUES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical Wavelength (nm)</td>
<td>1200nm to 1600nm</td>
</tr>
<tr>
<td>Max. Residual Attenuation, dB</td>
<td>1.5</td>
</tr>
<tr>
<td>Min. Attenuation range, dB</td>
<td>50</td>
</tr>
<tr>
<td>Max. Resolution, dB</td>
<td>0.1</td>
</tr>
<tr>
<td>Min. Optical return Loss, dB</td>
<td>55</td>
</tr>
<tr>
<td>Max. Polarization Sensitivity, dB</td>
<td>0.2</td>
</tr>
<tr>
<td>Operation Temperature, °C</td>
<td>0°C ~60°C</td>
</tr>
<tr>
<td>Storage temperature, °C</td>
<td>-40°C ~75°C</td>
</tr>
<tr>
<td>Max. Thermal Stability, dB/°C</td>
<td>0.03</td>
</tr>
<tr>
<td>Max. Optical Power, mW</td>
<td>300</td>
</tr>
<tr>
<td>Packaging Dimension, mm</td>
<td>38 × 30 × 21.5</td>
</tr>
</tbody>
</table>

Variable Micro-Optics Attenuator Ordering information

AN-VM XX/XX X XX XXX(cm)

- **Connector (in/out)**
  - 11-ST
  - 21-FC/PC
  - 22-FC/APC
  - 31-SC/PC
  - 32-SC/APC
  - 41-LC/PC
  - 51-MU/PC
  - 00-None
  - XX-Others

- **Fiber type (in/out)**
  - 1-Singlemode fiber
  - X-Others

- **Cable type**
  - 21- 2 mm cable
  - 31- 3 mm cable
  - XX- Others

- **Pigtail length**
  - 100- 100 cm
  - 200- 200 cm
  - xxx- Others

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## Mechanical Variable Air Gap type Attenuator

### Features

- Environmentally stable
- Easy installation
- Wide attenuation Range
- Low return loss
- Compact packaging
- Readily panel mountable
- Custom designed specifications

### Applications

- Fiber communication on system test
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<td>35</td>
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<tr>
<td>Max. Resolution, dB</td>
<td>0.15</td>
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<tr>
<td>Min. Optical return Loss, dB</td>
<td>55</td>
</tr>
<tr>
<td>Max. Polarization Sensitivity, dB</td>
<td>0.2</td>
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<tr>
<td>Operation Temperature, °C</td>
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</tr>
<tr>
<td>Max. Optical Power, mW</td>
<td>300</td>
</tr>
<tr>
<td>Packaging Dimension, mm</td>
<td>50 × 27 × 25</td>
</tr>
</tbody>
</table>
Variable Air Gap type Attenuator Ordering information

AN-VA XX/XX X XX XXX(m)

Connector (in/out)
11-ST
21-FC/PC
22-FC/APC
31-SC/PC
32-SC/APC
41-LC/PC
51-MU/PC
00-None
XX-Others

Pigtail length
001- 1 m
005- 5 m
010- 10 m
015- 15 m
020- 20 m
xxx- Others

Cable type
21-  2 mm cable
31-  3 mm cable
XX- Others

Fiber type(in/out)
1-Singlemode fiber
X-Others

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