

Timing/Delay Modules

Miniature Motorized Variable Optical Delay Line – VariDelay™ II



General Photonics' motorized variable optical delay line provides low cost, precision optical path length adjustment and delay scanning functionality. This addition to the MDL product line is specifically designed for OEM applications that require continuous scanning capability and a small footprint. The standard device has a delay range of 100 ps. An internal mirror can also be installed to cause light to double pass the device, doubling the delay range. A stepper motor and two position sensors ensure precise delay control. Low insertion loss and high reliability make this device ideal for integration in optical coherence tomography (OCT) systems, network equipment and test instruments for precision optical path length control or timing alignment. A mini controller board is available as an accessory.

Specifications:¹

Operating Wavelength ²	SM: 1260 to 1650 nm PM: 1310 or 1550 ± 50 nm
Optical Delay Range	0 to 100 ps, single - pass
Optical Delay Resolution	30 μm, single - pass at maximum speed
Optical Delay Accuracy	±40 μm, single - pass at maximum speed
Optical Delay Repeatability	±40 μm, single - pass at maximum speed
Insertion Loss	1 dB
Insertion Loss Variation	±0.3 dB over entire range
PDL	0.15 dB
Return Loss	55 dB
Extinction Ratio	> 18 dB for PM model
Actuation Speed	50 ps/s (single pass) max.
Optical Damage Power Threshold	100 mW
Electrical Interface	2 - phase stepper motor drive signal 2 sensor connections
Operating Temperature	0 to 50 °C
Storage Temperature	-20 to 60 °C
Fiber Type	SMF-28 or PM Panda fiber
Dimensions	2" (L) x 1.4" (W) x 0.55" (H)

Features:

- Compact
- Low insertion loss
- High stability
- High reliability
- Low cost

Applications:

- Optical Coherence Tomography (OCT)
- Optical Fourier spectrum analysis
- Optical interferometry
- Delay generation and measurement
- Optical time division multiplexing (OTDM)
- Fiber sensors

Dimensions (in inches):

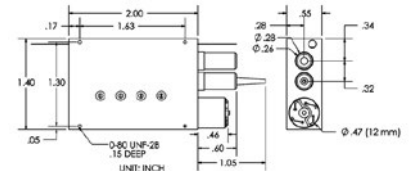
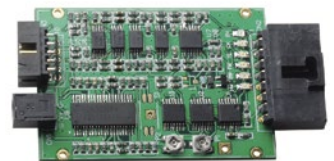
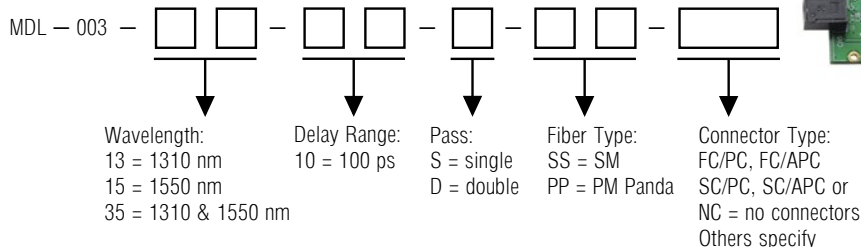


Figure 1. Mechanical dimensions

Notes:

1. Specifications in table apply for a single-pass device without connectors, measured over 1310 ± 50 nm or 1550 ± 50 nm. The output pigtail can also be replaced with a Faraday mirror to create a double pass device with a total range of 200 ps. Some specifications will change for this case.
2. Other wavelengths, such as 1064 nm, also available.

Ordering Information:



Driver board available

Configuration Notes:

1. Wavelength: 35 option (dual window 1310/1550nm) is available only for SM single-pass devices. PM or double-pass devices are single-window (1310 or 1550nm) only.
2. Double-pass only available with SM fiber