

Miniature Motorized Optical Variable Delay Line

MDL-002

General Photonics' motorized variable optical delay line provides precision optical path length adjustment of up to 560 ps. Driven by a DC motor with an integrated encoder, the MDL-002 has a delay resolution of less than 0.3µm (1 fs), and an extremely low backlash of less than 8 fs. In addition, its advanced motion design guarantees longevity for long-term continuous operation. 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. The MDL-002 is available in two configurations: with a separate control unit and optical head for incorporation into other equipment, or as an integrated unit for use as a bench-top instrument for laboratory applications. The motorized delay line can be remotely controlled by a PC through an RS-232 interface or locally controlled using the case-top keypad. It generally comes with single mode or PM fiber pigtailed, although a free-space version is also available.



Preliminary Specifications

Operating Wavelength	SM: 1260-1650 nm PM: 1310 or 1550 nm ± 50 nm
Optical delay range ¹	0 - 330 ps for 330 ps model 0 - 560 ps for 560 ps model
Optical delay resolution	0.3 µm or 1 fs per encoder count
Optical delay accuracy	± 0.01 ps or ± 3 µm
Optical delay repeatability	± 0.01 ps or ± 3 µm
Insertion loss	1.0 dB nominal
Insertion loss variation	± 0.3 dB over entire range for 330 ps model ± 0.5 dB over entire range for 560 ps model
PDL	0.1 dB
Return loss	50 dB
Extinction ratio	> 18 dB for PM model
Optical Damage Power Threshold	300 mW
Power supply	12VDC / 1A max.
Control mode	Panel keypad and RS-232 interface
Display	2 x 16 character LCD
Operating Temperature	0°C to 40°C
Storage Temperature	-20 °C to 60 °C
Fiber type	Corning SMF-28, or Fujikura PM Panda fiber
Dimensions (Control unit/integrated version)	330 ps model: 1.6" (H) × 4.4" (W) × 7" (L) 560 ps model: 1.6" (H) × 4.4" (W) × 9" (L)
Dimensions (Optical head)	330 ps model: 0.7" (H) × 1.46" (W) × 5.20" (L) 560 ps model: 0.7" (H) × 1.46" (W) × 6.18" (L)

Notes: Values are referenced without connectors.
1. 1120 ps model available. Contact General Photonics for details.

Applications:

- Optical coherence tomography (OCT)
- Optical Fourier spectrum analysis
- Optical interferometry
- Delay generation & measurement
- Optical time division multiplexing (OTDM)
- Fiber sensors

Unique Features:

- Compact size
- High resolution
- Low backlash
- Low insertion loss
- High stability
- Long delay range

Ordering Information:

MDL-002 - X - XX - XX - XXX - XX

Optical Head: I = Integrated, D = Detachable
 Delay Range: 33 = 330ps, 56 = 560ps
 Wavelength(PM): 13 = 1310 nm, 15 = 1550 nm
 Fiber Type: SS, PP
 Connector Type: FC/PC, FC/APC or NC = No Connectors

Making Light Work Lighter
General Photonics
 Corporation

General Photonics Corp.
 5228 Edison Ave.
 Chino, CA 91710

Tel: 909.590.5473
 Fax: 909.902.5536

Email:
 info@generalphotonics.com

Website:
 www.generalphotonics.com