



## Optical Delay Line with Driver (MDL Series)

Rev 11

### Description

Motorized Variable Optical Delay Line provides precision optical path length adjustment of up to 500 ps. Driven by a stepping motor and driver has been integrated inside following the RS-232 standard, the MDL has a delay resolution about 0.76  $\mu\text{m}$  (2.5 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.

### Key Features

- Excellent Repeatability
- Driver Integrated Inside, RS-323 Standard

### Applications

- Optical Coherence Tomography
- Test Instrumentation Applications

### Specifications

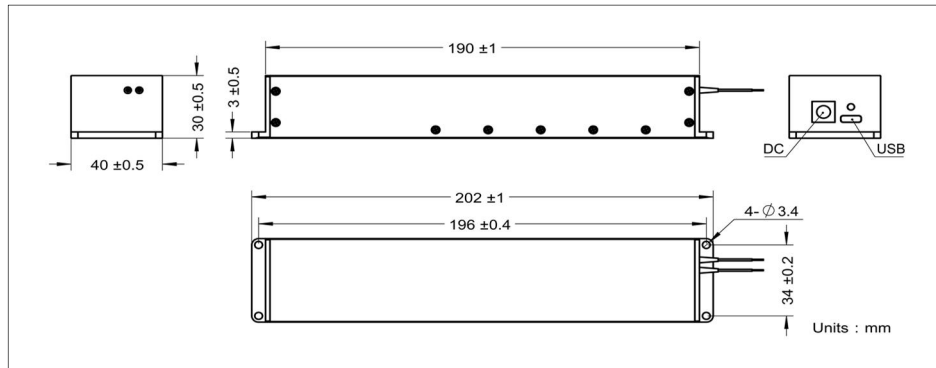
Parameter	Unit	Value
Center Wavelength ( $\lambda_c$ )	nm	1310 or 1550
Operation Wavelength	nm	$\lambda_c \pm 50$
Optical Delay Range	ps	0 - 500 ps Continuous
Zero Point Delay Offset <sup>1</sup>	ps	~ 440
Optical Delay Resolution <sup>2</sup>	-	0.76 $\mu\text{m}$ or 2.5 fs per encoder count
Repeatability <sup>3</sup>	$\mu\text{m}$	5
Max. Move Rate	mm/s	8
Max. Insertion Loss	dB	1.2
Max. Insertion Loss Variation	dB	$\leq 0.5$
Max. Temperature Dependent Loss	dB	$\leq 0.25$
Max. Wavelength Dependent Loss	dB	$\leq \pm 0.3$
Max. Polarization Dependent Loss	dB	0.1
Min. Extinction Ratio (for PM model)	dB	20
Min. Return Loss	dB	50
Max. Optical Power Handling (Continuous Wave)	mW	300
Electrical Interface	-	DC 5V1A USB
Operating Temperature	$^{\circ}\text{C}$	0 to + 40
Storage Temperature	$^{\circ}\text{C}$	- 40 to + 60
Fiber Type	-	Singlemode or PM Panda fiber

<sup>1</sup>IL is 0.5 dB higher, RL is 5 dB lower and ER is 2 dB lower for each connector added, measured at center wavelength.

<sup>2</sup>Absolute delay at 0 ps setting measured to the edge of the enclosure (excluding caps, boots, and pigtails).

<sup>3</sup>Delay resolution & repeatability based on angular resolution of stepper motor and pitch of lead-screw. Measured at 1/4-full-step (microstepping technology).

## Package Dimensions



## Ordering Information

**MDL-①①①①-②②②-③-④-⑤-⑥-⑦-⑧**

①①①①: Wavelength

1310 - 1310 nm

1550 - 1550 nm

②②②: Delay Range

500 - 500 ps

③: Attenuator

N - None

④: Connector Type

1 - FC/UPC

2 - FC/APC

3 - SC/UPC

4 - SC/APC

N - None

S - Specify

⑤: Fiber Jacket

B - 250  $\mu$ m Bare Fiber

L - 900  $\mu$ m Loose Tube

⑥: Fiber Length

1 - 1.0 m

S - Specify

⑦: Fiber Type

S - Singlemode Fiber

P - PM Fiber