

Motorized Variable Optical Delay Line

MDL Series: Motorized Variable Optical Delay Line (600ps).

Hirundo's motorized variable optical delay line provides precision optical path length adjustment of up to 1200 ps. Driven by a step motor, the MDL has a delay resolution of less than 10 μ m (34 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.

Features:

- Compact
- High resolution
- Low backlash
- Low insertion loss
- High stability
- Highest delay to length ratio
- Long delay: up to 1600 ps

Applications:

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

Performance Specifications

| Parameter | Unit | Values |
|---|------|--|
| Center Wavelength (λ_c) | nm | 850, 980, 1060, 1310, 1550 or 2000 |
| Operation Wavelength | nm | $\lambda_c \pm 40$ |
| Optical Delay Range | ps | 0 - 600 ps continuous |
| Zero Point Delay Offset** | ps | ~440 |
| Optical Delay Resolution | | 10 μ m or 34 fs per encoder count |
| Max. Insertion Loss | dB | 1.0 |
| Max. Insertion Loss Variation | dB | 0.5 |
| Max. PDL | dB | 0.1 |
| Min. Return Loss | dB | 50 |
| Max. Optical Power Handling (Continuous Wave) | mW | 300 |
| Electrical Interface | | 2 - phase stepper motor drive signal 2 sensor connections |
| Operating Temperature | °C | -5 to +70 |
| Storage Temperature | °C | -20 to +85 |
| Fiber Type | | Singlemode or PM Panda fiber |
| Dimensions | mm | 60 × 150 × 23 (600ps version) |

*IL is 0.3 dB higher, RL is 5 dB lower and ER is 2 dB lower for each connector added, measured at center wavelength

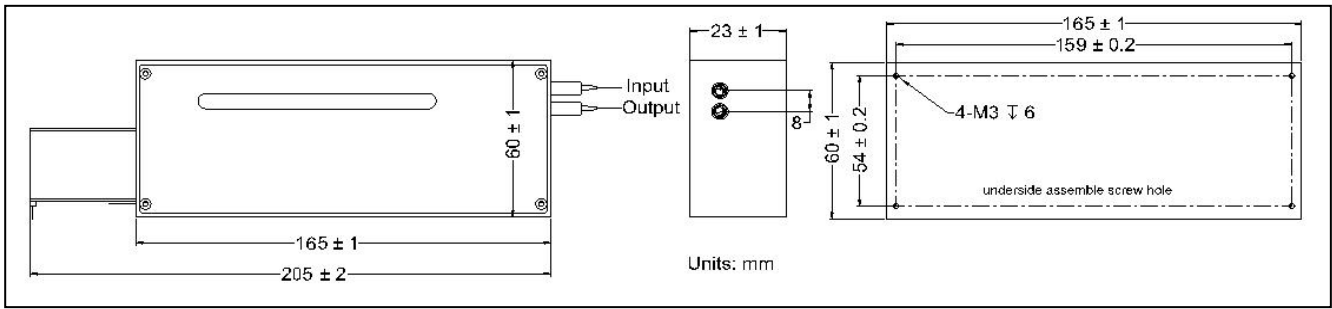
**Absolute delay at 0 ps setting measured to the edge of the enclosure (excluding caps, boots, and pigtails).

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Outline Diagram

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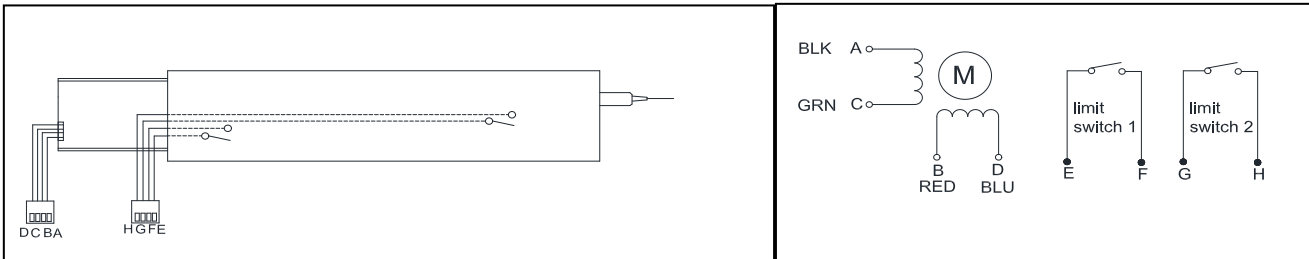
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Motor Shaft: Single / Double

The Motorized Delayline can be used as manual version if choose the double shaft motor.

Electrical Interface



Electronic Connector Type: KF2510-4P

Ordering Information

MDL-①①①①-②②②②-③-④-⑤-⑥-⑦

①①①①: Wavelength

850 - 850 nm

980 - 980 nm

1060 - 1060 nm

1310 - 1310 nm

1550 - 1550 nm

2000 - 2000 nm

②②②②: Delay Range

300 - 300 ps

500 - 500 ps

600 - 600 ps

800 - 800 ps

1200 - 1200 ps

③: Connector Type

1 - FC/UPC

2 - FC/APC

3 - SC/UPC

4 - SC/APC

N - None

④: Fiber Jacket

B - 250 μm bare fiber

L - 900 μm loose tube

3 - 3 mm cable

⑤: Fiber Length

H - 0.5 m

Q - 0.75 m

1 - 1.0 m

S - Specify

⑥: Fiber Type

S - Singlemode fiber

P - PM fiber

⑦: Motor Shaft

S - Single

D - Double