



FIBER STRETCHER AND DRIVER (FEMTOSECOND/MICROMETER RANGE) OPTICAL DELAYS



Fiber stretchers, also called phase shifters, offer the attractive feature to tune and modulate the path length of the light within the fiber core and so the resulting optical delay does. They are based on voltage-driven Piezo ceramics and need to be controlled with proper electronics drivers. Any type of fiber may be assembled, please ask.

IDIL fiber stretchers and piezo drivers are all developed and manufactured in-house. Each system can operate independently – indeed, our fiber stretchers do not require proprietary drivers and our piezo drivers are suitable with all fiber stretchers available on the market. Their compact packaging makes them suitable for various system applications. Typical applications include variable optical delay, fiber interferometry, ultra-fast dynamics and lasers.

Applications

- Variable optical delay
- Interferometric measurements
- Ultrafast dynamics
- Fast feedback loop
- Lasers & ultra-intense lasers
- Metrology
- Coherent Beam Combining
- Chirped Pulsed Amplification (CPA)

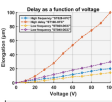
Features

- Modulation of the optical path length (i.e. the optical phase)
- Accurate control of the delay
- Low insertion loss between 0.05 and 0.3dB
- High resolution
- High speed
- Compact packaging
- All fibers: SM, MM, PM, LMA
- Large choice of optical termination
- Analog control (+digital in option)

Optical delay solutions 1

IDIL ▶ DYNAMIC DELAY - FEMTOSECOND/MICROMETER RANGE

Fiber stretchers (standalone specifications¹)



Do not require proprietary drivers

- Fiber elongation
- Fiber stretch
- Time delay
- Voltage drive
- Modulation (Small signal BW)
- Modulation (Large signal BW)
- Capacitance
- Optical loss
- Internal fiber length (typ.)
- Dimensions (mm³)

Low-Frequency 200 MHz to 100 MHz From 10V to 10V	High-Frequency 500 MHz to 100 MHz From 10V to 10V	High-Delay 100 ps to 100 ps
0.20 μm or 0.40 μm 0.25 μm or 0.50 μm	0.10 μm 0.20 μm 0.30 μm	0.100 μm 0.200 μm 0.300 μm
0.500V 1.000V	0.500V 1.000V 1.500V	0.500V 1.000V 1.500V
20 or 40mm ²	40mm ² 80mm ² 120mm ²	40mm ² 80mm ² 120mm ²
0.5mm 1.0mm	0.5mm 1.0mm 1.5mm	0.5mm 1.0mm 1.5mm
20 or 40mm	5.0m 10.0m 15.0m	5.0m 10.0m 15.0m
30x40x20	40x40x20	40x40x20

¹ The above specifications give the maximum capabilities of our fiber stretchers. As alternative mechanical interfaces are compatible with a piezo driver

² Calculated with 1P Piezo driver

Driver • Driver • Driver • Driver • Driver


Fiber optics & Components
Low-Frequency Piezo driver

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Optical delay solutions 2

IDIL ▶ CONTROLLED DELAY - FEMTOSECOND/MICROMETER RANGE

High-Frequency Piezo drivers

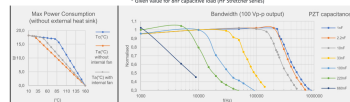


Compatible with all fiber stretchers (IDL, others)

- Small signal bandwidth
- Large signal bandwidth
- Output voltage
- Output power (100V Full BW)
- Gain
- Control (DMM connector)
- Power supply
- Consumption
- Emission cooling
- Dimensions (mm³)
- *Open value for 500 pF capacitive load (1P Stretcher series)

High-Frequency piezo drivers

- 20MHz*
- 200MHz*
- 0.000V
- 2000Vp
- 200Wp
- Analog (+digital)
- 10V
- up to 15W
- 4
- 93 x 80 x 39



Fiber optics & Components
High-Frequency Piezo driver

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Optical delay solutions 3

IDIL ▶ CONTROLLED DELAY - FEMTOSECOND/MICROMETER RANGE

Low-Frequency Piezo drivers



Compatible with all fiber stretchers (IDL, others)

- Small signal bandwidth
- Large signal bandwidth
- Output voltage
- Output power (100V Full BW)
- Gain
- Control (DMM connector)
- Power supply
- Consumption
- Emission cooling
- Dimensions (mm³)
- *Open value for 500 pF capacitive load (1P Stretcher series)

Low-Frequency piezo drivers

- 10MHz*
- 100MHz*
- 0.000V
- 1000Vp
- 100Wp
- Analog (+digital)
- 10V
- up to 2.5W
- 4
- 86 x 66 x 16

Fiber optics & Components
Low-Frequency Piezo driver

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Related products

- Optical delay line (ps/mm range)
- Tunable Fiber Bragg Gratings (FBG)
- Optical delay solutions overview
- Time delay coil (ns/m range)



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