

Dazzler

The reference of ultrafast pulse shaping

Dazzler products are turn-key ultrafast pulse shaping systems, performing simultaneous and independent spectral phase and amplitude programming of ultrafast laser pulses.

The Dazzler (or AOPDF for Acousto-Optic Programmable Dispersive Filter) relies on a longitudinal interaction between a polychromatic acoustic wave and a polychromatic optical wave in the bulk of a birefringent crystal. Optical signals in the hundreds of Terahertz range are then controlled by RF signals in the tens of Megahertz range.

Unlike other ultrafast pulse shapers relying on 4-f lines to spatially disperse the spectral components, the Dazzler does not require a complex optical setup. The Dazzler crystal is the only component inserted in your experiment, and installation is performed in a few minutes only.

Dazzler modules can be implemented inside CPA and OPCPA systems to pre-compensate gain narrowing and to compensate high order phase distortions, thus enabling the generation of shorter and cleaner ultrafast pulses. With its unique dispersion-free and shot to shot Carrier-Envelope Phase control capability, Dazzlers are at the core of the most advanced laser systems.

Dazzler ability to generate phase-locked copy of the incoming pulses makes it the ideal add-on to turn any pump/probe spectroscopy experiment in a 2D setup.

With over 700 systems installed worldwide, the Dazzler is the reference tool for your pulse shaping applications.



Applications

Scientific:

- > CPA peak power improvement
- > 2D spectroscopy
- > Ultrafast delay line
- > CEP stabilization
- > OPCPA dispersion control
- > Arbitrary pulse shaping

Options

- > Streaming: fast pulse shape scanning, dedicated to 2D spectroscopy experiments
- > High power amplifier for better diffraction efficiency
- > Low-jitter electronics
- > CEP control module
- > Wizzler for high dynamic pulse compression optimization

Key Features

- > From UV to SWIR
- > Ultra-compact
- > Quantitative shaping – no ghost pulses
- > Wide range of application-specific options
- > All-included, fully integrated system

Specifications

Specifications	UV	VIS	NIR-SWIR	NIR-SWIR	SWIR
Model	Qz	WR25	HR25	HR45	WB45
Wavelength tuning range (instantaneous bandwidth) (nm)	250-400	460-740 510-950	650-1100 900-1700	650-1100 1100-2200 1450-3000	2000-3700
Spectral resolution (nm)	0.1 at 250nm 0.2 at 400nm	0.2 at 500nm 0.5 at 900nm	0.3 at 800nm 1 at 1550nm	0.1 at 650nm 1.5 at 2600nm	3.5 at 2500nm 7 at 3500nm
Maximum programmable delay (ps)	4 at 250nm 2.9 at 400nm	9 at 500nm 6 at 900nm	8 at 800 7.5 at 1030	14 at 900nm 13 at 2100nm	5.5 at 2800nm
Standard diffraction efficiency * contact us for high power amplifier options	20% at 250nm 10% at 400nm (for 30-70fs pulse duration FTL)	30% on a 100nm bandwidth	25% on a 100nm bandwidth	25% on a 200nm bandwidth	25% on a 400nm bandwidth
Input beam requirements	10μJ max on a 1.5mm beam diameter - collimated	30μJ max on a 2.5mm beam diameter - collimated			
Typical optical jitter * with optional low-jitter electronics (fs)	< 10 * < 0.1				

Other models available upon request

Dimensions



Model	Qz	WR25	HR25	HR45	WB45
Crystal module (mm3)	113 x 194 x 30	33 x 85 x 22	33 x 85 x 22 Or 48 x 94 x 20	52 x 105 x 23	48 x 98 x 22
Electronics	Rack 19" 4U P 405mm	Rack 19" 4U P 405mm Or 323 x 269 x 160 mm	Rack 19" 4U P 405mm Or 323 x 269 x 160 mm	Rack 19" 4U P 405mm Or 323 x 269 x 160 mm	Rack 19" 4U P 405mm Or 323 x 269 x 160 mm