FC Spider Few Cycles

Precise Characterization of Very Short Pulses Down to <5 fs

The FC Spider (Few Cycle Spider) by APE provides spectral and temporal characterization of ultrashort laser pulses down to below 5 fs. It covers the infrared and near-infrared ranges as well as the visible wavelength range with the FC Spider VIS.

This high precision tool is ideal for aligning and monitoring the performance of broadband Ti:Sa oscillators and amplifier chains.

The FC Spider VIS supports the visible spectral region down to 450 nm, suitable for characterization of e.g. nonlinear optical parametric amplifiers (NOPA).

Based on the proven and patented SPIDER* technology, using a non-drifting, etalon interferometer and a material dispersion stretcher, the FC Spider directly measures the spectral phase by analyzing a spectral interferogram. In combination with a simultaneously measured power spectrum, a real-time calculation and visualization of the spectral and temporal amplitude as well as phase can be performed.



- Short pulse characterization down to <5 fs
- Available solutions for the VIS, NIR and IR range
- Real-time and single-shot measurement of phase and intensity
- High level of automated software support and internal camera assisted alignment
- Full software suite included
- Ideal for broadband Ti:Sa oscillators, hollow-core fiber compressors, and NOPA

*Spectral Phase Interferometry for Direct Electric-field Reconstruction;

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FC Spider Specifications

FC Spider	VIS	NIR	IR
Center wavelength	~500 nm ~600 nm ~700 nm	~800 nm	~1030 nm
Spectral bandwidth	5 nm … 50 nm for ~500 nm 10 nm … 80 nm for ~600 nm 20 nm … 100 nm for ~700 nm	25 nm … 200 nm	50 nm … 200 nm Optional: 50 nm … 300 nm
Transform limited pulse width	8 fs … 75 fs for ~500 nm 7 fs … 50 fs for ~600 nm 7 fs … 35 fs for ~700 nm	<5 fs … 40 fs	7 fs … 30 fs Optional: 5 fs … 30 fs
Maximum pulse width (chirped)	120 fs	200 fs	200 fs
Laser repetition rate	Any, single shot (<20 Hz)		>100 Hz
Trigger	TTL, for laser repetition rate <20 Hz		TTL, for laser repetition rate 100 Hz … 10 kHz
Interface	USB 2.0		

Input requirements:

Laser pulse energies	0.2 nJ … 8 nJ for MHz repetition rates <10 µJ for kHz repetition rates ~10 µJ for Hz repetition rates / single shot
Polarization	Linear, horizontal
Beam diameter	<5 mm
Beam height	72 mm … 106 mm (spectral phase and intensity) 87 mm … 121 mm (spectral intensity)

Options:

Wavelength	Others on request, please ask
External beam splitter and beam routing kit	On request, please ask
Notebook	on request, please ask with pre-installed Spider software

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