

# Spider IR 1 $\mu\text{m}$ Central Wavelength

## Towards Short Pulses at 1 $\mu\text{m}$ Central Wavelength

- The Spider IR is a precision tool optimized for the complete spectral and temporal characterization of laser pulses in the infrared. Based on the patented Spider\* technology, it extends the existing range of APE Spider models to cover longer pulses, between 30 and 500 fs, at a central wavelength of around 1  $\mu\text{m}$ .
- It also supports detection of the chirp sign for stretched pulses greater than 2 ps width, making it a smart choice for the alignment of pulse compressors.
- With its two internal spectrometers (for fundamental spectrum and upconverted interferogram) the Spider IR is able to simultaneously measure and analyze both spectra needed for pulse reconstruction, by using the same pulse. This gives it true single-shot capability.
- Furthermore, the Spider IR control software supports real-time calculation of the temporal amplitude and phase. The user-friendly design features highly automated software to guide the operator through calibration and alignment procedures and enable measurements to be executed with a minimum of data input.



- Best choice for pulses between 30 and 500 fs at 1  $\mu\text{m}$  central wavelength
- Spectral intensity and phase plus temporal intensity and phase measurement
- Real-time and true single-shot measurement of intensity and phase
- High level of automated software support and internal camera-assisted alignment
- Full software suite included

\*Spectral Phase Interferometry for Direct Electric-field Reconstruction; International Patent No.: EP 1000315, WO 1999/006794

# Spider IR Specifications

## Specifications

Wavelength Range	970 ... 1070 nm *
Typical Application	Characterization of lasers with small bandwidths, larger pulse widths, e.g. 1 $\mu$ m laser
Spectral Bandwidth	> 6 ... 50 nm
Pulse Width	30 ... 500 fs; 5 ps for chirp direction measurement only
Laser Repetition Rate	Any; Single Shot
Input Polarization	Linear horizontal
Input Power	~ 100 mW at e.g. 80 MHz; ~ 20 mW at e.g. 1 kHz
Input Trigger	TTL for $f < 10$ Hz
Connection	USB
Software	Included; Features e.g. <ul style="list-style-type: none"> <li>▪ Alternative interferogram demodulation analysis: Fourier / Wavelet</li> <li>▪ E-field plot</li> <li>▪ Peak power calculation</li> <li>▪ Measurement of phase differences (Dispersion measurement)</li> <li>▪ Spectral phase derivation up to fourth order</li> <li>▪ Simulation of additional theoretical dispersion (GDD, TOD, FOD)</li> <li>▪ Spectrogram (X-FROG, SHG-FROG) and Wigner trace representation of the pulse</li> </ul>

## Options

- External Beam Splitter and Beam Routing Kit For lasers with low repetition rates (kHz or less)
- Pre-installed Notebook Available
- Wavelength Ranges Customized wavelength ranges on request

## Dimensions

561 x 289 x 320 mm (W x H x D) (See appendix for details)