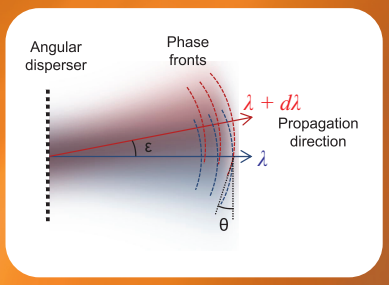
CEO-2D-AD

for real time, full characterization of angular dispersion in a laser beam

Side effects of Angular Dispersion

- Spectral phase modulation (Chirping)
- Temporal pulse broadening
- Spatial chirp
- Tilted pulse front



Phase front (θ) and propagation direction angular dispersion (ε).
For plane waves: $\theta=\varepsilon$, for Gaussian beams: $\theta\neq\varepsilon$

Our solution for 2D angular dispersion measurement: CEO-2D-AD

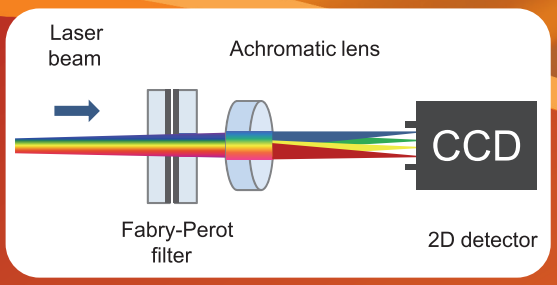
Once a laser beam suffers from angular dispersion, its spectral components propagate into different directions. Hence, in the focal plane of an objective lens, the focal spot will be enlarged and distorted compared to an angular dispersion-free beam of the same size. The shape of the intensity distribution will be uniquely characteristic to spectral angular deviation.

CE Optics' new product, CEO-2D-AD offers a 2D solution for angular dispersion measurement. The broadband beam is spectrally filtered in order to create well separated peaks in the spectrum. Since these components are still overlapping spatially, we use an achromatic lens to image them onto a two-dimensional detector. In this way, the spectrally separated components of an angularly dispersed beam will appear as dissociated spots on the surface of the detector according to the orientation of the angular dispersion.

This solution allows for a quick and iteration-free alignment of stretcher-compressor stages of CPA systems; or even for applications like THz wave generation or attosecond lighthouse monitoring.

Features

- single-shot, real time operation
- ideal for stretcher-compressor alignment of CPA systems
- high measurement accuracy
- easy to handle
- a support grating included for precise measurement of close-to-zero angular dispersion



Schematic layout

Specifications	CEO-2D-AD	CEO-2D-AD PRO
Measurement accuracy	better than 1 μrad/nm	better than 0.42 μrad/nm
Fabry-Perot design	air-spaced, fixed base length	air-spaced, fixed base length
Fabry-Perot spacing	27 nm	17 nm
Support grating	ruled, 600 1/mm	ruled, 300 1/mm
Detector resolution	1280x1024	1600x1200
Detector S/N ratio	38 dB	62 dB
Pixel size	4.65 μm	4.4 μm
Connection	USB 2.0	USB 2.0
Triggerable	Yes	yes
Measurement software	Yes	yes

Custom designs available to suit your needs best. Please contact us for more information!

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