For current pricing, please see our website.

2DSI: Femtosecond Pulse Characterization (Page 1 of 2)

NEW products

2DSI

idestaQE quantum electronics

Features

- Direct Pulse Measurement Down to 4.5 fs
- Avoids Sensitive Calibration
- Direct Reconstruction, No Iterative Search Algorithm Required
- 50 Attosecond Phase Delay Precision
- Dispersion Free
- Octave-Spanning Bandwidth
- Fundamental and Up-Converted Spectrum Measured in Same Device
- Fully Automated
- Guide Laser for Easy Set Up

Developed by idestaQE, a strategic partner of Thorlabs, in close collaboration with MIT, Two-Dimensional Spectral Shearing Interferometry (2DSI) is a pulse measurement system that measures an ultrashort pulse envelope by interfering neighboring spectral components. 2DSI overcomes certain disadvantages in other pulse measurement techniques by encoding the spectral group delay in the spectrum of a single nonlinearly transformed pulse, rather than two. This avoids the need to calibrate the delay between two pulses to high precision, a potential complication with other techniques for few-cycle pulses. In addition, the interferogram produced by 2DSI is a direct representation of the spectral group delay of the pulse, allowing for reconstruction of the pulse shape without the need for iterative search algorithms.

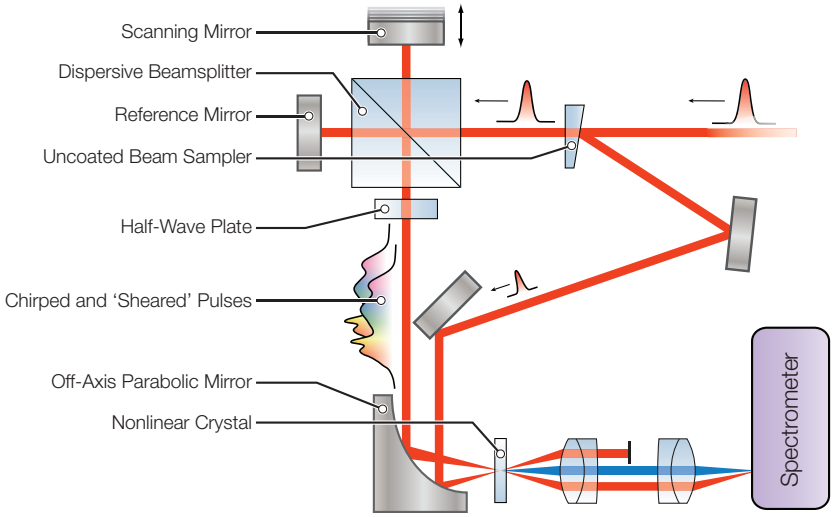
2DSI can accurately measure the spectral group delay of pulses with time-bandwidth products in excess of 20, precisely resolving all pulse features, such as weak satellite pulses, which other techniques can miss. The 2DSI geometry also inherently avoids having the pulse pass through any dispersive materials and uses type II up-conversion with a phase-matching bandwidth of nearly an octave.

The idestaQE 2DSI automates the measurement process so that the only user intervention required is the initial alignment, which is made easy by a counterpropagating alignment laser. The mechanical setup is based on idestaQE's flexure stage design for all critical components. Long-term, hands-off operation was one of the major design goals. A high-quality, high-dynamic-range spectrometer allows for simultaneous measurement of both the 2DSI interferogram and fundamental spectrum. This makes the 2DSI an ideal tool for ultra fast oscillator, amplifier, and hollow core fiber output characterization.

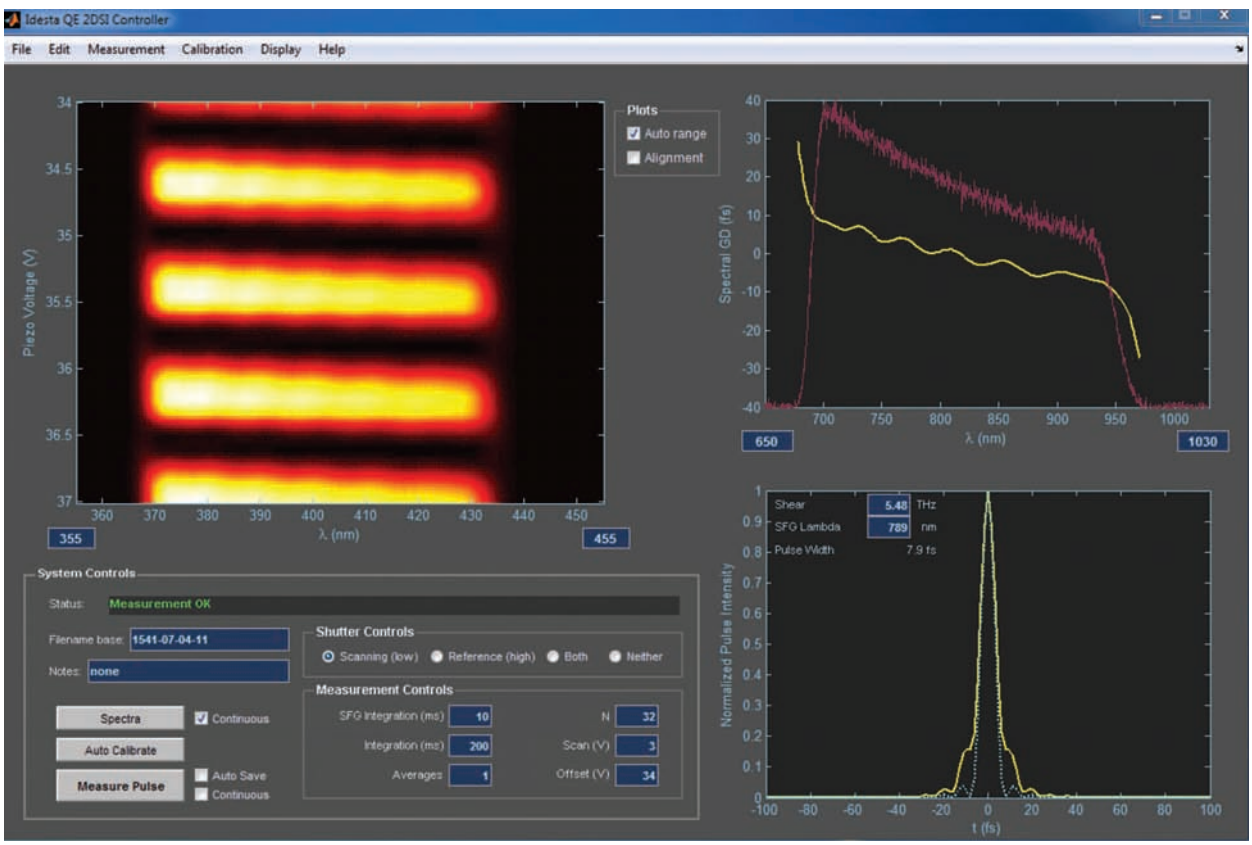
ITEM #	2DSI	2DSI-ER	2DSI-LP
Wavelength	650 – 1000 nm	550 – 1000 nm	650 - 1000 nm
Transform Limit Pulse Width	<25 fs		10 - 75 fs
Time-Bandwidth Product (Max)	>20		
Spectral Phase Precision	50 attoseconds		
Pulse Energy	>0.5 nJ		
Single Shot	No		
Refresh Rate	Up to 10 Hz		
Dimensions*	326 mm x 240 mm x 135 mm (12.85" x 9.45" x 5.3")		

*Beam Height: 3.5" (88.9 mm)

2DSI: Femtosecond Pulse Characterization (Page 2 of 2)



Pictured to the left is a conceptual schematic of the 2DSI system. Please note that the pulse under test travels dispersion free through the instrument.



The upper left image shows raw 2DSI traces, which allow for an intuitive and qualitative estimate of the chirp on the pulse under test. Any deviation from a horizontal line is an indication of a non-transform-limited pulse. The graph in the upper right of the screenshot shows the group delay as a function of wavelength, while the lower right graph is the reconstructed temporal pulse shape.

ITEM #	$	£	€	RMB	DESCRIPTION
2DSI	$ 25,000.00	£ 18,000.00	€ 21.750,00	¥ 199,250.00	2DSI, 650 - 1000 nm
2DSI-ER	$ 27,500.00	£ 19,800.00	€ 23.925,00	¥ 219,175.00	2DSI-Extended Range, 550 - 1000 nm
2DSI-LP	$ 25,000.00	£ 18,000.00	€ 21.750,00	¥ 199,250.00	2DSI-Long Pulse, 650 - 1000 nm