THE ULTIMATE MEASUREMENT AND CONTROL TOOL FOR ULTRAFAST LASER OSCILLATORS AND HOLLOW-FIBER COMPRESSORS

d·scan

MEASURE AND COMPRESS
YOUR ULTRAFAST LASER

sphere
ULTRAFAST PHOTONICS

Sphere Ultrafast Photonics
Rua do Campo Alegre, 1021 - Edifício FC6
4169-007 Porto - Portugal
sales@sphere-photonics.com

www.sphere-photonics.com

d-scan

sphere ULTRAFAST PHOTONICS

MEASURE AND COMPRESS YOUR ULTRAFAST LASER

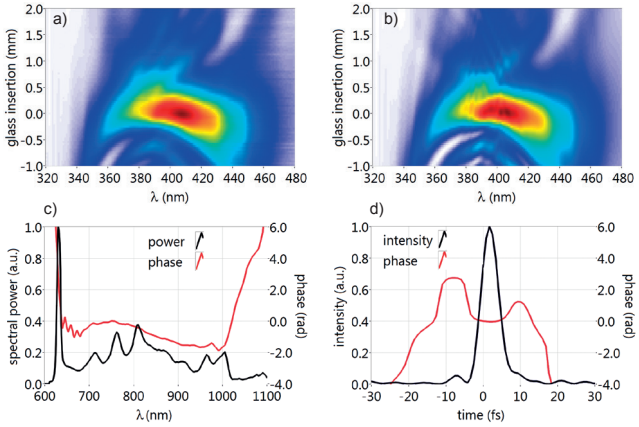
d-scan is an inline, compact and high-performance device for the simultaneous measurement and compression of even the most demanding ultrafast pulses.

d-scan can be used either as a standalone system or integrated with existing optical pulse compressors. It handles broadband oscillators, amplifiers, OPAs and hollow-fiber compressors.

Coupling your beam into the d-scan is easily achieved in less than one minute and a full measurement takes less than 10 seconds.

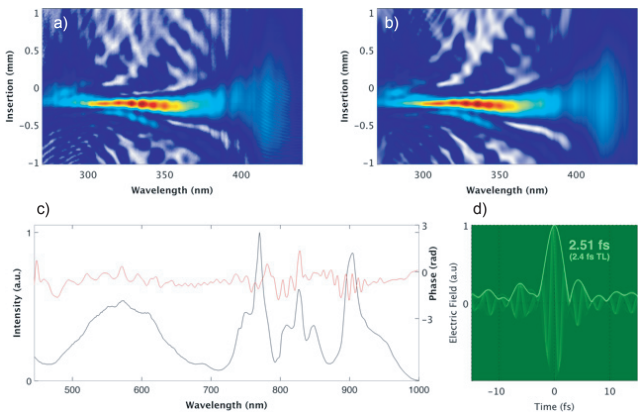
The resulting d-scan traces are very intuitive and a proprietary algorithm provides fast and accurate retrieval of the full electric field of the pulses.

OSCILLATOR



Few-cycle Ti:Sapphire oscillator: Measured (a) and retrieved (b) d-scan traces. (c) Measured spectrum (black) and retrieved spectral phase (red). (d) Retrieved temporal profile (black) and phase (red). Pulse duration is 5.5 3 0.1 fs (FWHM).

HOLLOW-FIBER COMPRESSOR



Single-cycle hollow-fiber compressor: Measured (a) and retrieved (b) d-scan traces. (c) Measured spectrum (black) and retrieved spectral phase (red). (d) Retrieved temporal profile for the wedge insertion that minimizes the pulse duration, corresponding to 2.5 fs (1.3 cycles at 700 nm).

TECHNICAL SPECIFICATIONS

	d-scan B [a]	d-scan R [b]	d-scan NIR [c]	d-scan 1.5
Wavelength range	450-1000nm 500-1050nm	600-1100nm	700-1400nm	1500-1700nm
Pulse duration (FTL)	2.5fs to 10fs	sub 5fs to 20 fs	2.5fs to 60fs	60fs to 200fs
Chirp range	±375 fs2	±720 fs2	±600 fs2	±4000 fs2
Repetition rate	1 kHz and above [d]			
Input polarization	Linear			
Max beam diameter	20 mm	10 mm		
Required input energy	>100 pJ @ 80 MHz >1 pJ @ 1 kHz			
Compression module dimensions (WxLxH)	317 x 336 x 97 mm	250 x 250 x 100 mm		
Measuring head dimensions (WxLxH)	182 x 336 x 97 mm	57 x 57 x 116mm		

(a) Optimized for hollow fiber compressors
(b) Optimized for Ti:sapphire oscillators and OPCPAs
(c) Optimized for OPCPA

(d) Lower repetition rates possible with external synch option
* Vacuum compatible systems available on request

Talk to us for different wavelength range, chirp range, input aperture, and other

© Sphere Ultrafast Photonics SA, Portugal - Specifications may change due to technical developments | v2

Patent No. US20140321486 A1