LightMachinery
Excellence in Lasers and Optics

Brillouin HyperFine Spectrometer

with "GREEN KILLER" *pump suppression* HF-8999-532

Massive Dynamic Range, Ultra-Fast Acquisition, MHz precision, User-friendly

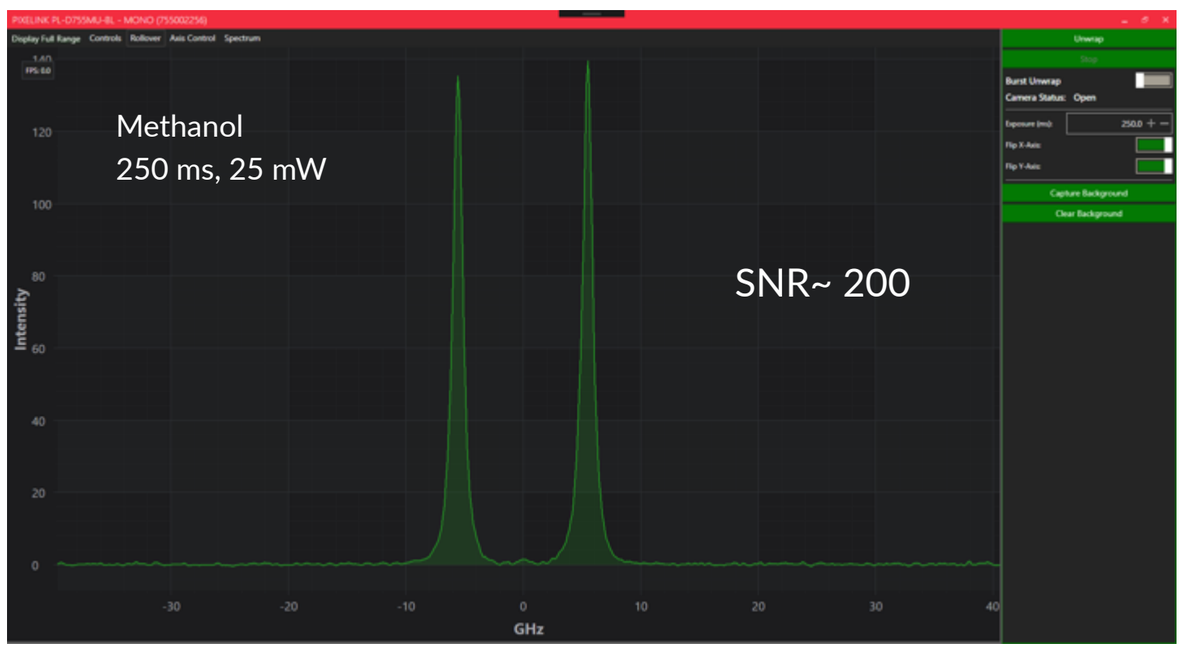
The great challenge with Brillouin spectroscopy is that the Rayleigh light from the pump laser can overwhelm the small Brillouin shifted return signal. So, we have combined our leading edge HyperFine spectrometer with a very narrow band tunable filter to suppress the bright un-shifted laser frequency. The tunable filter (the Green Killer) is easily adjusted to suppress the main laser peak and exposure gating is used by the HyperFine spectrometer to drastically increase the full dynamic range of the instrument. This combination achieves a dynamic ratio of 75 db with our ultra low noise sCMOS camera.

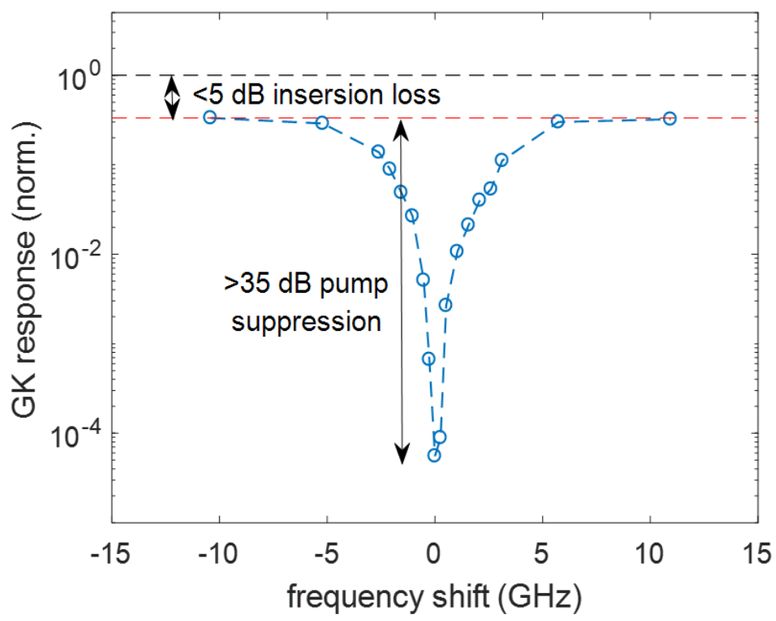
The tunable filter is comprised of a double passed air spaced etalon. LightMachinery's proprietary fluid jet polishing process is utilized to create both the tunable etalon filter and the main VIPA etalon in the spectrometer. Together, these high finesse elements provide unparalleled sensitivity in a relatively compact size, perfect for Brillouin scattering.

LightMachinery's HyperFine Brillouin spectrometer with integrated Green Killer

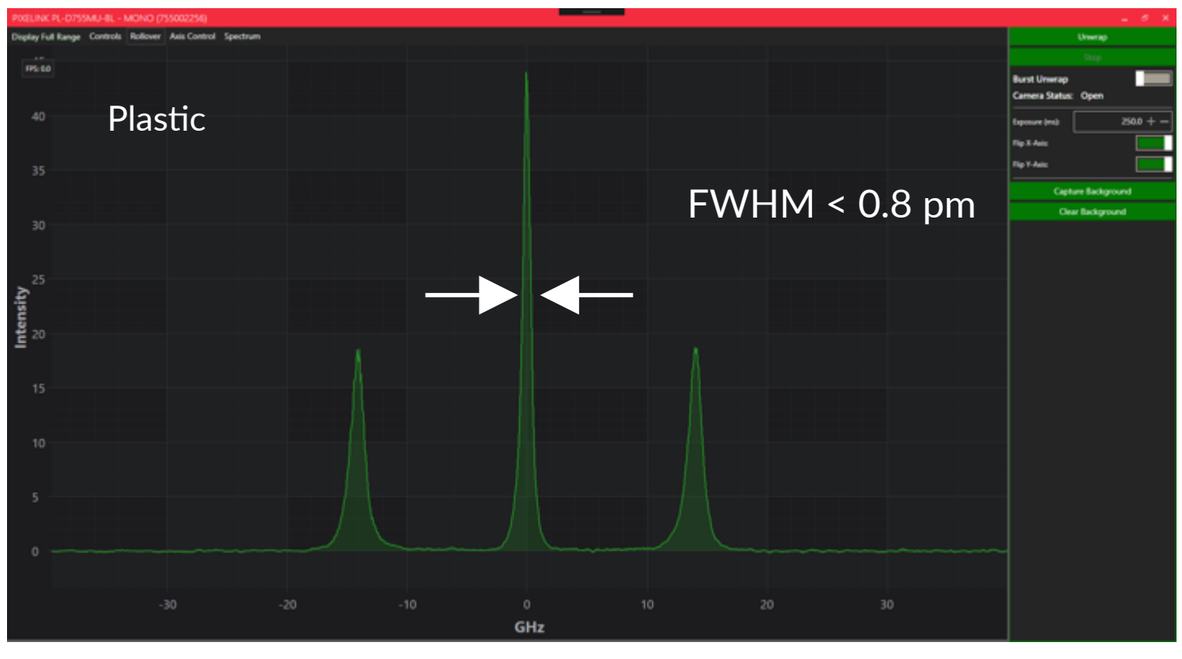
- Minimal alignment required
- High throughput enabling fast acquisition
- High resolution and high precision
- High contrast and high pump suppression
- Large spectral range covered in a single shot
- Simple integration - Compact Size
- An affordable device that comes ready to use out of the box.

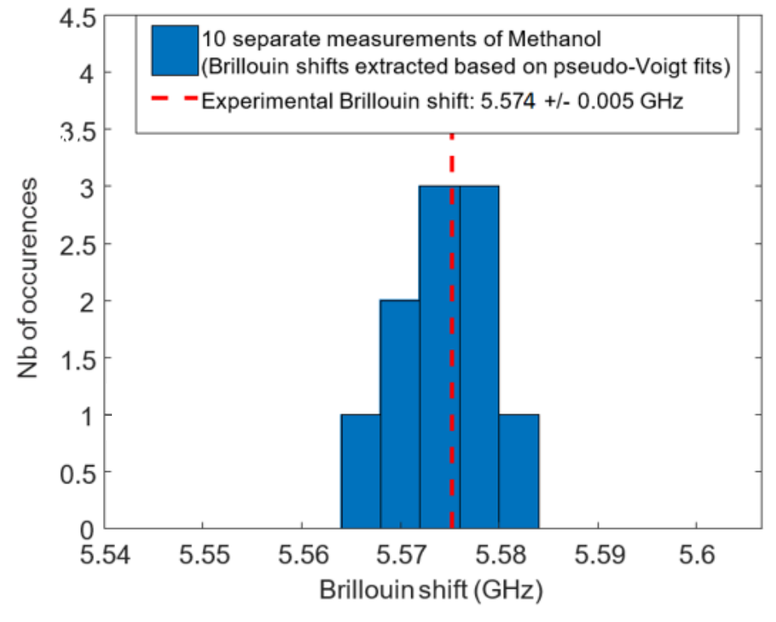
Fast and **effectively noiseless** Brillouin spectra with **minimal-to-no regular alignment** required and **built-in Green Killer** module to suppress the pump



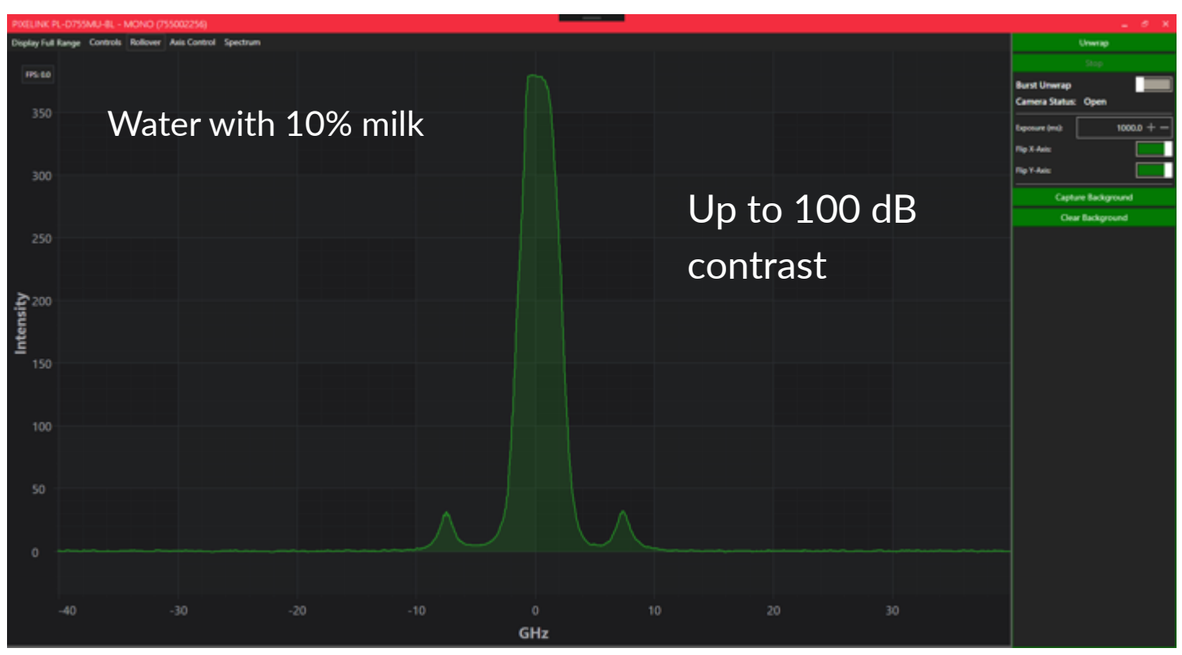


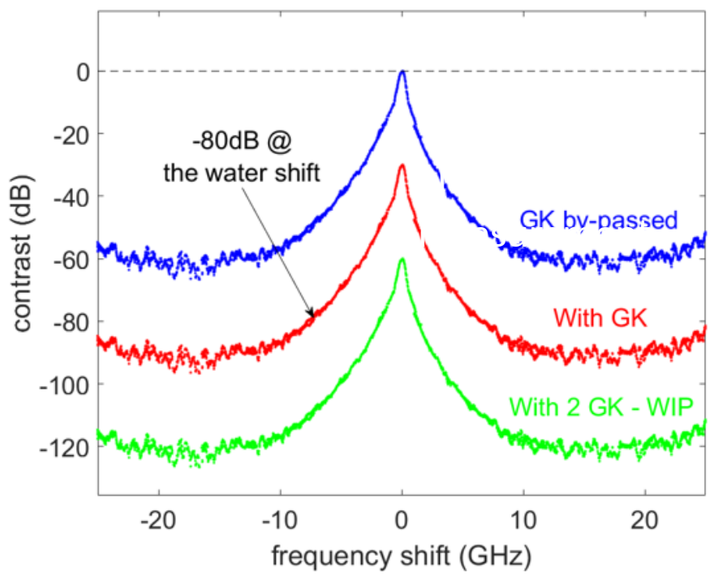
High resolution: <1 GHz FWHM instrument response & <10 MHz precision on Brillouin shift measurement;





Pump suppression and **high contrast** (up to 90 dB): even highly turbid (opaque) samples can be measured





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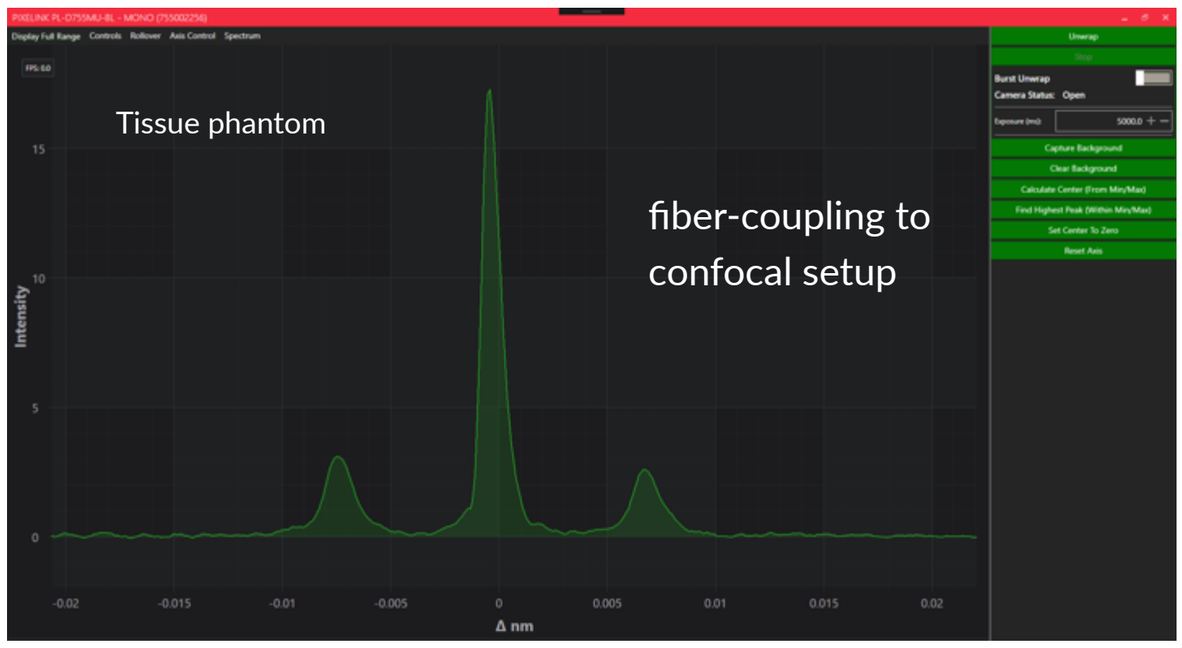
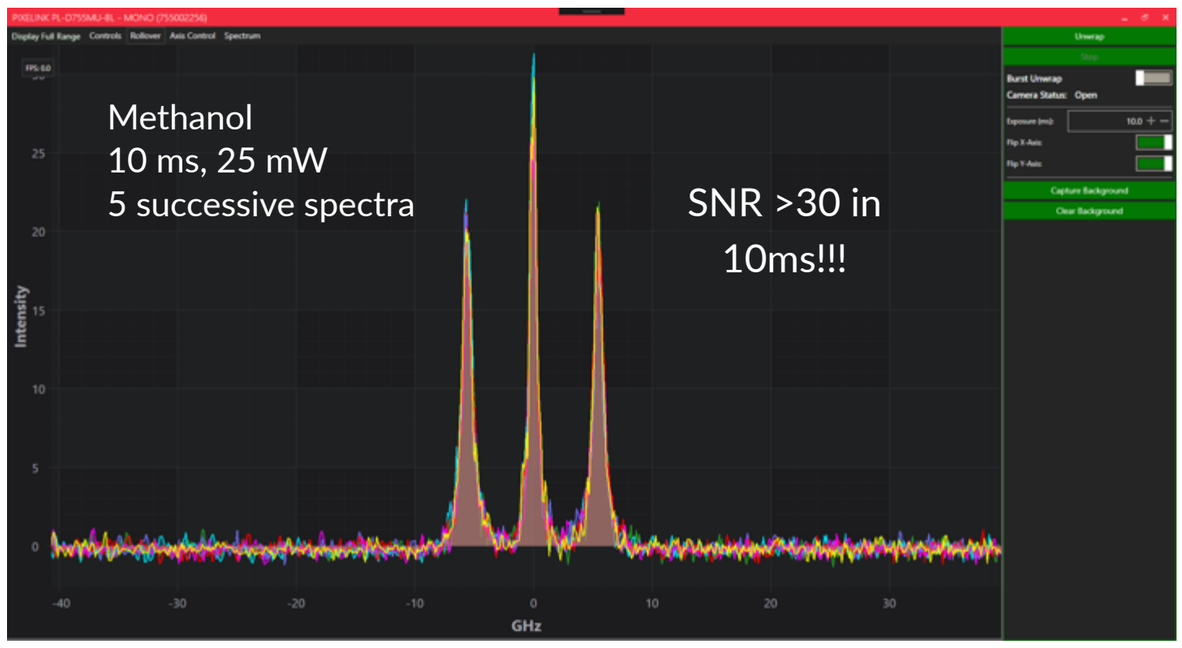
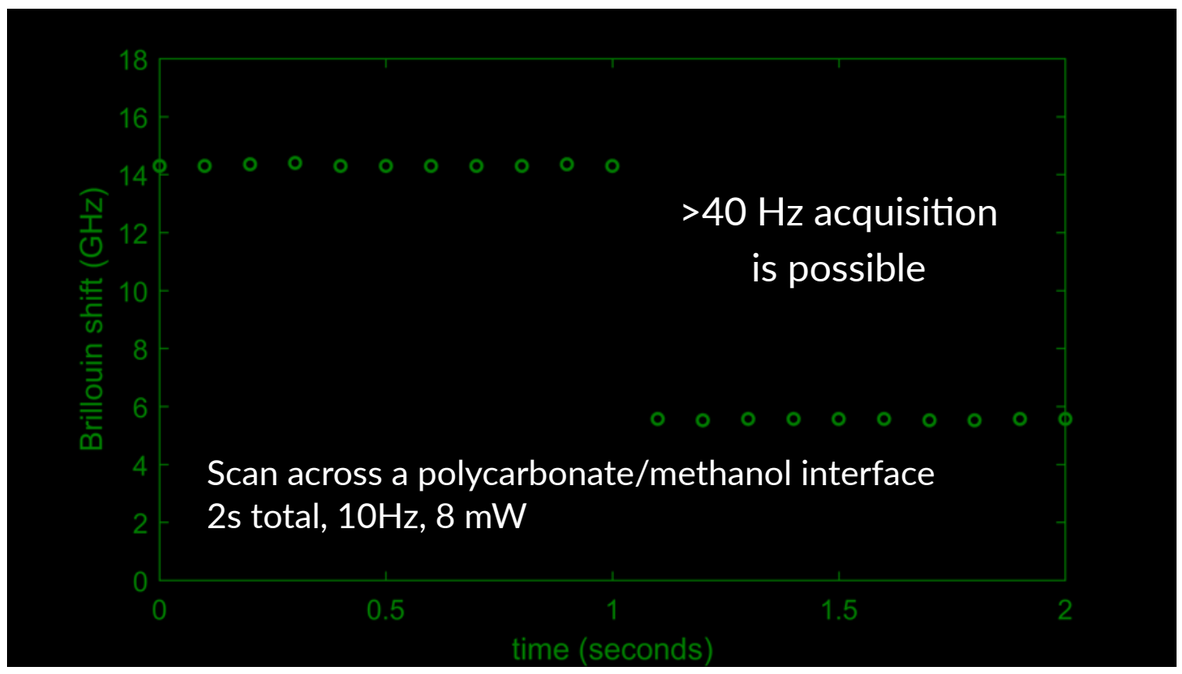
Simple integration via fiber coupling to confocal systems: perfect for characterizing mechanical properties of **biological samples**; **Affordable** instrument essentially ready to use as soon as it is out-of-the-box

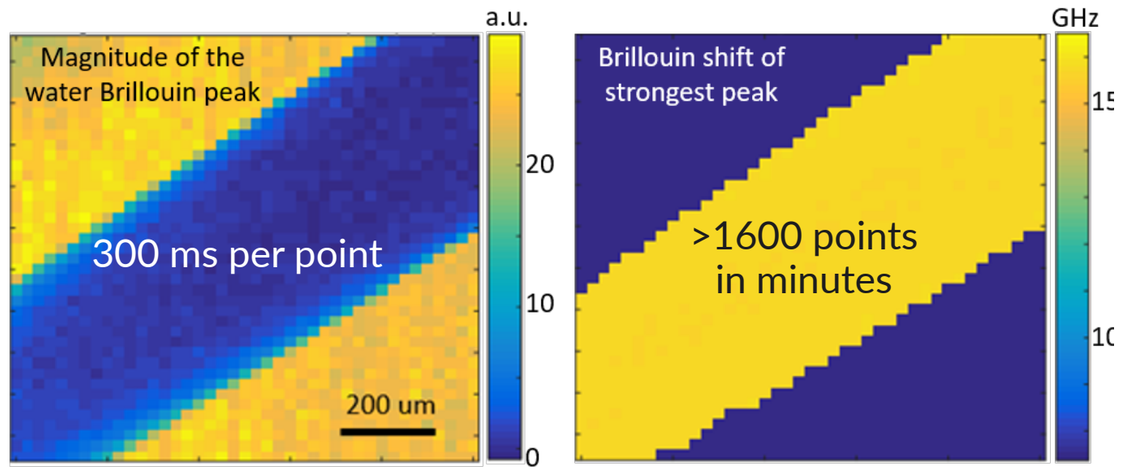


Ultra-high throughput: high signal-to-noise Brillouin signal in milliseconds is possible; **Large spectral range** in a single snapshot (>2 THz): can measure hard materials and even ultra-low frequency Raman spectra;



Ultra-fast acquisition: rapid high resolution imaging or monitoring of fast reactions (> 40Hz is possible)





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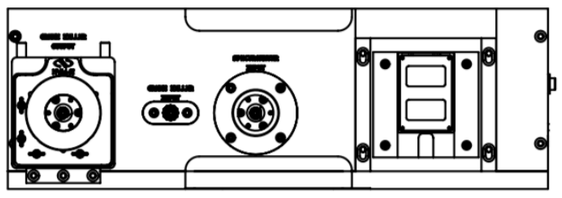
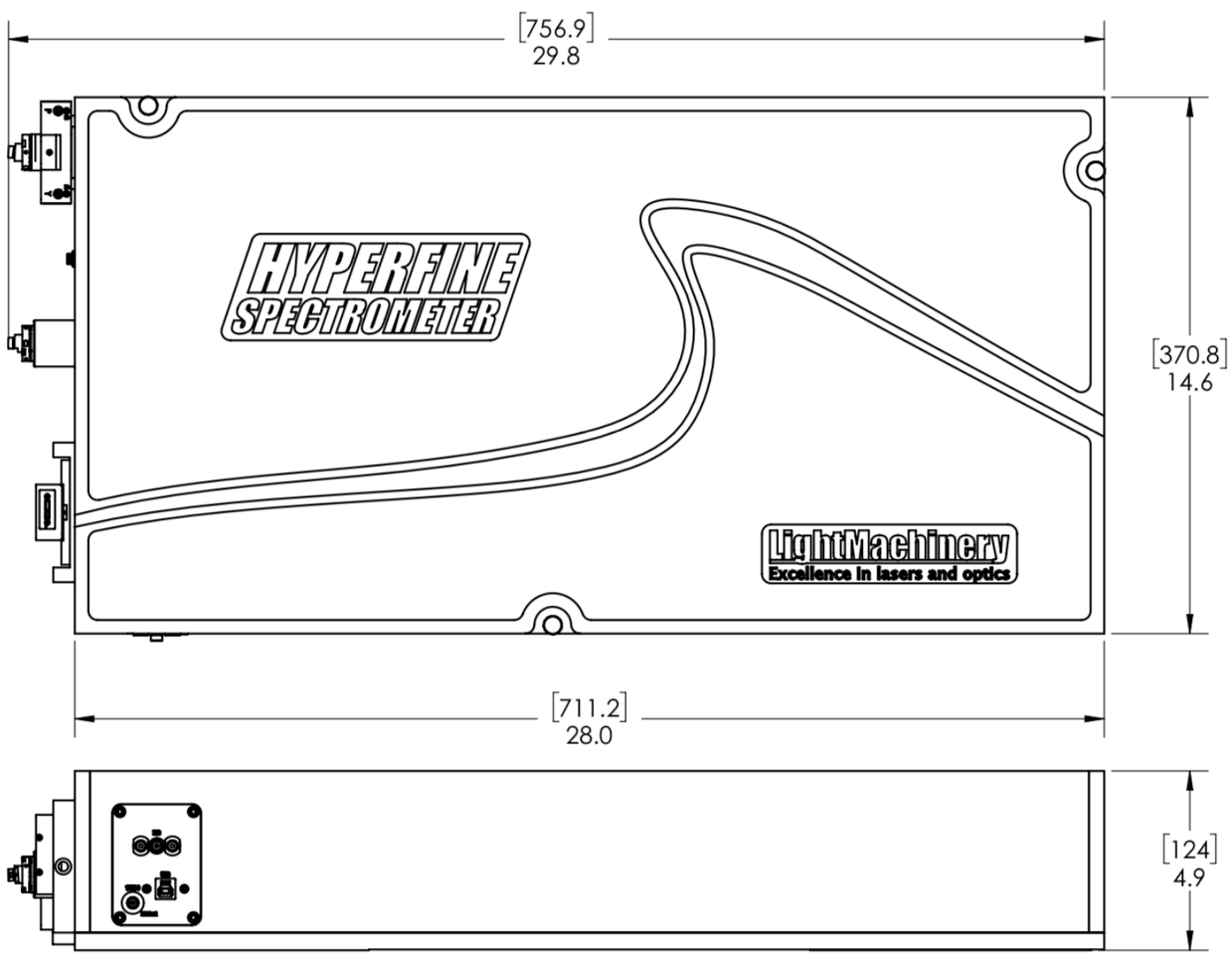
Specifications

Wavelength range	530.5nm - 533.5nm
Spectral resolution	<1 pm (<0.6 pm upon request)
Precision	<10 MHz (sample dependent and acquisition time dependent)
Pump wavelength filter suppression	> 30 dB
Pump suppression filter tunability	+/- 1nm
Pump suppression filter width	0.5pm
Dynamic range (at 7 GHz from pump)	>75 dB
Filter input	SMF (free space coupling is possible upon request)
Acquisition rate	up to 40 Hz
USB 3.1	>1A required
Dimensions	71 x 37 x 15 cm
Weight	25 kg

SCALE 1:8





Note: Dimensions in [ ] are millimeters

For further technical and sales information, please visit our website or contact:

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