

# SUPER-FAST OCEAN FX™ SPECTROMETER

Get More Spectral Data in Less Time

Spectrometers | Accessories | Subsystems | Complete Solutions



## OCEAN FX PROVIDES HIGH ACQUISITION SPEED

The **Ocean FX** is a versatile spectrometer distinguished by acquisition speed up to 4,500 scans per second, onboard spectral buffering for storing up to 50,000 spectra, and robust communications via USB, Gigabit Ethernet and Wi-Fi. **Ocean FX** is an excellent choice for high-speed process applications, measurement of fast events, and reaction monitoring.



### ADVANTAGES OF OCEAN FX

- Acquisition speed of up to 4,500 spectra collected per second
- Integration times as short as 10  $\mu$ s
- CMOS detector (200-1100 nm) with great UV response
- Onboard buffering (up to 50,000 spectra stored) and processing
- Wired Gigabit Ethernet, Wi-Fi and USB
- Thermally stable optical bench and indicator LED for convenience

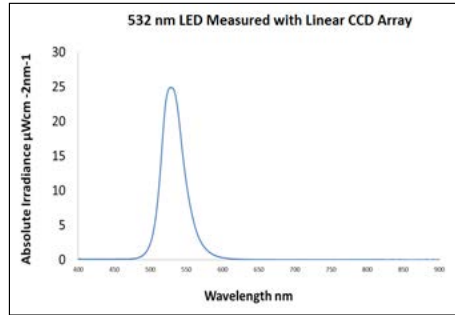
**Ocean FX** is available in application-ready, custom and OEM spectrometer configurations. The spectrometer can be integrated into other devices as a component, subassembly or turnkey solution.

### OCEAN FX SPECIFICATIONS

<b>Spectral range:</b>	200-1100 nm (configurable within this range)
<b>Gratings:</b>	Multiple options
<b>Entrance slits:</b>	Interchangeable 5, 10, 25, 50, 100 or 200 $\mu$ m width slits
<b>Input fiber connector:</b>	SMA 905 or FC/PC
<b>Acquisition (scan) rate:</b>	4,500 scans per second (maximum; varies by performance of operating system and computer)
<b>Integration time:</b>	10 $\mu$ s-10 s
<b>Optical resolution:</b>	Configuration dependent; 0.8 nm (FWHM) w/600 line/mm grating and 5 $\mu$ m slit
<b>SNR (single scan):</b>	300:1
<b>Dynamic range (single scan):</b>	6400:1
<b>Onboard buffering:</b>	50,000 spectra
<b>Thermal stability:</b>	~0.11 pixels/° C



# WHERE TO USE THE OCEAN FX SPECTROMETER



## Measurement of High Intensity Sources and Plasmas

**Challenge:** Applications with high-intensity light levels can saturate detectors and force adjustments to spectrometer operation that lessen system dynamic range.

**Solution:** By integrating over periods as brief as 10 µs, Ocean FX capably manages saturation intensity. Also, because of its rapid acquisition rate, Ocean FX collects more spectral information over shorter periods of time, contributing to better results.

**Applications:** High-intensity LED and light source measurement; laser characterization; spectral analysis of explosions (formulations, blast fireball); plasma monitoring



## Measurement of Rapid Events

**Challenge:** Spectral analysis of rapidly occurring events such as high frequency laser output can be difficult to capture accurately.

**Solution:** Ocean FX acquires spectra with such speed that very fast events can be measured confidently and otherwise undetected spectral effects made evident.

**Applications:** Measurement of single pulses of lasers, even at kHz repetition rates; flicker and fast color cycling in lighting



## Measurement of Fast Reaction Kinetics

**Challenge:** Monitoring short-lived chemical reactions for life sciences, pharma and biomedical R&D requires rapid, continuous measurements.

**Solution:** In addition to its fast acquisition rate, Ocean FX offers an onboard buffer to store up to 50,000 spectra, ensuring no data points are missed during critical stages of the reaction.

**Applications:** Fluorescence of fast proteins and other biomolecules; absorbance of reagents and other products; chemical oscillating reactions in biochemical processes



## High-Speed Sorting and QC Processes

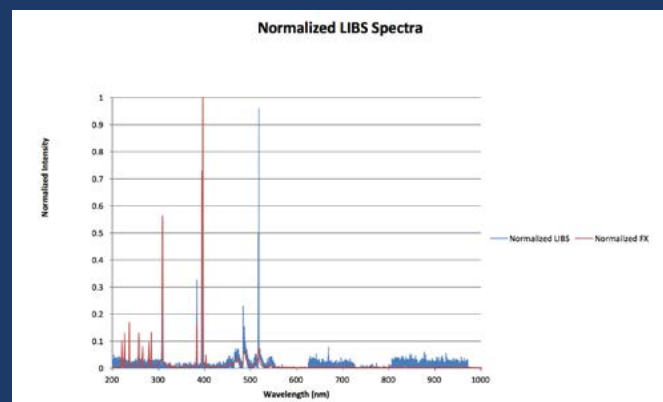
**Challenge:** Monitoring sample color, quality and other characteristics in high-speed environments requires a spectrometer with fast sampling rates.

**Solution:** With its high scan rate, Ethernet capability and onboard processing, Ocean FX overcomes the limitations of some analytical devices for processing environments.

**Applications:** Food sorting and grading; high-speed plastics recycling; at-line and in-line absorbance, color and reflection measurements of various samples

## Ocean FX for LIBS?

High sampling rates, short integration times and good UV sensitivity make Ocean FX a useful option for analyzing atomic emission lines in laser-generated plasmas, as occurs in LIBS (laser-induced breakdown spectroscopy). In a recent series of LIBS measurements of a copper coin, an Ocean FX setup detected significantly more atomic emission lines, especially in the deep UV, than a setup using a typical CCD spectrometer.



# OCEAN FX SPECTROMETER FOR OEM APPLICATIONS

We pledge our partnership, expertise and resources to help transform your OEM product idea

The **Ocean FX** is a modular spectrometer, allowing you to source the device at the component, subsystem or system level, depending on your need and stage of product development. **Ocean FX** fills a niche where high speed acquisition, Ethernet and Wi-Fi communications, and onboard spectral buffering are desired.

Ocean Optics spectrometers, multispectral sensors, light sources and accessories are compact, portable and low in power consumption, enabling rapid time to market for your ideas, on a scalable platform.

To learn more about OEM opportunities for **Ocean FX** and other products, email us today at [oem@oceanoptics.com](mailto:oem@oceanoptics.com).



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