



# Sensors for Real-Time Analysis

advanced sampling options and detection technology

Ocean Optics optical sensors provide a viable alternative to traditional chemical sensing devices and consist of transducer materials applied to the tips of optical fibers or to substrates such as patches or cuvettes. These indicator materials change optical properties in response to specific analytes in their immediate environment, with formulations available for a variety of oxygen and pH sensing needs.

Thanks to our developments in sensor detection technology and sampling options, you can enjoy lower system prices and greater application versatility than ever before.

## NeoFox Phase Measurement System

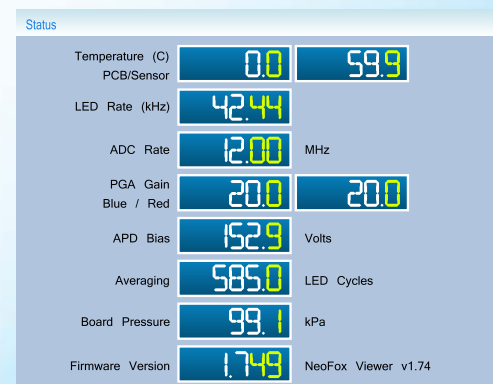
A new option for the detection part of our fluorescence-based optical sensor systems helps reduce costs, improve system stability and make calibration easier for most oxygen sensing setups. NeoFox is a benchtop device for measurement of fluorescence lifetime, phase and intensity, and is especially useful for applications where sensitivity to drift and system stability are important. What's more, NeoFox is about half of the cost of our previous phase-measurement system, and includes a self-calibration feature for improved electronic stability.



### System Specifications

	FOXY Formulation (general-purpose coating)	FOSPOR Formulation (high-sensitivity for low levels of O <sub>2</sub> )	HIOXY Formulation (for hydrocarbon environments)
O <sub>2</sub> % range:	0-20%	0-<1%	0-20.9% at 1 ATM
DO range (ppm):	0-10 ppm	0-0.5 ppm	0-8 ppm
Temperature range:	-20-+80 °C for probes 0-60 °C for patches	-20-+80 °C for probes 0-60 °C for patches	0-60 °C NA
O <sub>2</sub> resolution:	100-500 ppm	10 ppm	100-500 ppm
DO resolution:	4-20 ppb at room temp.	0.4-2 ppb at room temp.	4-20 ppb at room temp.
O <sub>2</sub> accuracy:	5% of reading	5% of reading	5% of reading
DO accuracy:	5% of reading	5% of reading	5% of reading
Min. detectable level:	100-500 ppm	10-100 ppm	100-500 ppm
Response time:	< 1 second in gas ~30 seconds with overcoating ~45 seconds in pure water	< 1 second in gas ~30 seconds with overcoating in gas ~45 seconds in pure water	< 1 second in gas ~45 seconds in pure water

### NeoFox Interface



Starting under \$3,000

Complete O<sub>2</sub> Sensing Systems including NeoFox, general purpose probe, software and accessories.



## New Option for Monitoring O2 in Packaging

The award-winning RedEye™ Oxygen Sensor Patch is a self-adhesive patch with oxygen indicator that attaches directly inside packages and containers for non-invasive measurements. RedEye sizes vary from a few millimeters to several centimeters, giving you a custom fit; in fact, RedEye's sensing material is versatile enough to be applied to substrates that meet most any specification. Also, different RedEye sensing formulations are available to optimize your results for every sample environment. Use RedEye for monitoring oxygen levels in the headspace of bioreactors and blood bags and for measuring oxygen gas and dissolved oxygen non-intrusively during bioprocesses and in pharmaceutical packaging such as blister packs for pills.



Starting at \$45  
RedEye Evaluation Kit  
Special Volume Discounts Available

## New Probes Expand O2 Sampling Options

With the addition of new probes for small samples and for biological materials, we now offer nearly a dozen oxygen sensing probe options – everything from slender probes for fine spatial resolution to rugged stainless steel probes for process environments. Our newest options include a 200 micron polyimide probe – our smallest probe yet – for very small sample sizes, and an angled probe for biological samples. Optional silicone coatings (both standard and medical-grade) can be applied to probes to exclude ambient light, improve chemical resistance and eliminate refractive index effects.

## Phenol Red pH Test Kits

Use our Phenol Red pH Test Kits to determine the pH level in solutions. Simply add 3 mL solution to the test cuvette, cap it, and shake the cuvette to disperse the dye. Measure the absorbance value of the reactive color to determine pH levels. CHEM-TEST works with any Ocean Optics spectrometer system that is configured for absorbance.

## Coating Options for OEMs and Product Developers

Our optical-sensor coating technologies are available to OEMs and product developers designing new products for chemical-sensing applications. With our oxygen and pH indicator materials, clients can develop and manufacture a variety of custom optical sensor devices including fiber optic probes, cuvettes, Petri dishes, microscope slides and more. Also, RedEye patches are designed especially with OEMs in mind, where high-volume production runs can lower costs and monitor sample conditions more efficiently than existing methods. Additional services include sensor coating development and the licensing of Ocean Optics proprietary oxygen and pH coating technologies. Contact an Applications Scientist for details.

