

Product highlight

Our next generation spectrometers

The **HR4000** is our next generation of high resolution spectrometers and comes with:

- A new 3648 element Toshiba detector that enables resolutions as high as 0.04 nm (FWHM).
- Ultrafast integration times of 10 us.
- A programmable Microcontroller.
- USB 2.0 / RS232 / I2C integrated circuit 2-wire serial BUS.
- Full scan into memory in 4msec.



OceanView

Bring on the Visionaries!

Recognizing and seizing opportunities is what Ocean Optics is all about. In fact, one of our basic goals is to generate a partnership with each customer, so we can better appreciate the customer's application challenge. This open, collaborative approach is also designed to attract the visionaries and the innovators, potential partners whose technologies complement our own. Various partnerships have been created over the years creating new and innovative products.

In this issue of Matrix we highlight the DH2000- Balanced light source. One of the partner-ship products just recently introduced.

In addition you will find our latest development for fluorescence applications. The USB2000-FLG. This spectrofluorometer can detect fluorophores in liquids and powders, and from surfaces.

All these products and more are highlighted in the new Ocean Optics 2004 Catalog to be introduced soon.

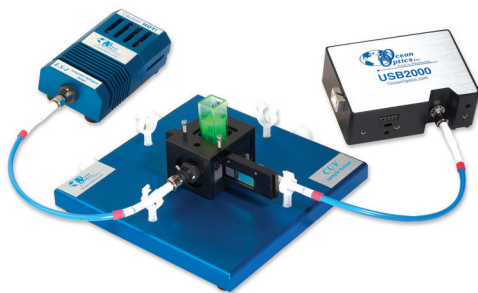
Interested to learn more about the diversity of applications whereby Ocean Optics Spectrometers are used? Read the articles in this newsletter.

With kind Regards,

Kees van de Steeg
Managing Director



Gated Spectrometer for Fluorescence



Ultimate Fluorescence Spectrometer

The USB2000-FLG Spectrofluorometer is a preconfigured spectrometer for applications from 380-1050 nm.

We utilized a proprietary thin film technology with a time-gated spectrometer to provide a spectrofluorometer that is 20% more sensitive than the standard USB2000 Spectrometer.

Scattered Light

When taking a fluorescence measurement, the spectrometer detects scattered excitation light from the sample. Since fluorescence signals are often weak, it is important to avoid detecting light from the excitation source. Another problem is scattering from the excitation source, which is especially prevalent in turbid samples. The USB2000-FLG uses two features to avoid detecting excitation light: special mirrors in the optical bench to absorb UV light and improve sensitivity and -- for fluorophores with long fluorescence lifetimes -- a time-gated mode that delays the start of spectral data acquisition by 5-500 microseconds after the excitation source is turned on.

Interested in fiber optic probes or any other special probe design? Get in touch



Designs for fiber optic reflection probes

Ocean Optics Personal Wiebe de Vos

Hi, I am Wiebe, I joined Ocean Optics two years ago and have started up the fiber department. My main interest is to increase the variety of fiber related products such as special probes and cable assemblies to support your requirements. We have successfully carried out various projects and would be interested to get in touch with you and learn more about your specific needs for fiber assemblies.

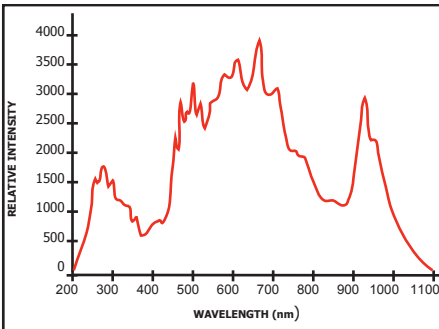


DH-2000 Balanced Light Source

D-Alpha line

All Deuterium-tungsten light sources have a D-Alpha line, revealed as a jagged peak in the visible portion of the spectrum that produces "unbalanced" output. Correcting for this deuterium line (A sharp spectral feature near 655nm) is difficult. Reducing the integration time to reduce the peak reduces the efficiency of the system. We have therefore introduced the DH-2000 Balanced with proprietary filter technology.

DH-2000-BAL with HR4000-CG



Based on our high-precision patterned dichroic filter technology we have developed a filter that balances the intensity of the deuterium and tungsten sources. This results in a smoother spectrum across the entire wavelength range and eliminating problems with saturation. By comparison, most combination UV-VIS sources can be adjusted for relative intensity only.

Order now!

The new 2004 Product Catalog

- **FOXY-LITE handheld oxygen analysis**
 - Rugged, compact O2 sensor for gases and liquids
 - LCD screen displays O2 values in ppm, % O2 or custom units, and has strip chart that plots O2 values over time
 - System is especially effective for headspace analysis in packaging and oxygen determination in biologicals
- **PlasCalc plasma monitoring and control**
 - High resolution fiber-optic spectrometer (FWHM=1nm) with a spectral range of 200-1100nm.
 - Our PlasCalc all-in one software gives you full spectrometer control, data acquisition, time analysis and process control capabilities.
- **Fluorescence flow injection system**
 - Photomultiplier-based, flow-through detection system that provides parts-per-trillion sensitivity
 - designed for ultra-low fluorescence, chemiluminescence and bioluminescence measurements
- **And lots of other new products.**
- **Mail your catalog request to catalog2004@oceanoptics.nl**

Package deal (valid until the end of april)

Interested in the HR4000CG-UV-NIR and the DH2000-BAL?

Receive € 900,- discount on the purchase of both systems.



€ 5.649,- for the set.

(Normal price is € 6.549,-)

Owners of a D2000 or DH2000 light source!

If you are the owner of any of the above light sources you can receive a discount on the DH2000-BAL of € 350,-. Get in touch and find out more about our great offer.

Interested in an upgrade of your DH2000 to the DH2000-BAL, call us to discuss the options: +31 (0) 26 319 05 00

UVSentry Open-Path Air Monitor

Sensing dangerous chemicals at parts-per-trillion levels

Innovative Open-Path Air Monitoring System revolutionizing how gases are detected in the air.

The UVSentry, is a fully automated, low cost, easy to use open-path air monitoring system. The UVSentry detects and quantifies atmospheric toxic compounds in real time with a single analyzer and senses dangerous chemicals at parts-per-trillion levels in wide-area environments (up to 850 meters in length). The UVSentry is being used by community groups, environmental regulators and industry to map hazardous emission from pollution sources.

Developed by Cerex Environmental Services of Atlanta, Georgia, the portable UVSentry is equipped with an integrated Ocean Optics HR2000 High-resolution Spectrometer that can resolve the fine spectral features of dangerous airborne toxics including sulfur dioxide, nitrogen oxide, benzene, mercury, toluene, xylene, ammonia, formaldehydes and more.

The UVSentry includes a UV deuterium optical transmitter unit and a UV optical receiver unit. The UV transmitter projects a UV beam through the sample area to the receiving unit using telescope optics. The receiver, which can be positioned from 1 meter to 850 meters from the transmitter, collects the UV beam and sends it to the

integrated HR2000 Spectrometer, which is configured to detect light from 180-320 nm. Microsoft Excel-based software is used to analyze the presence of airborne toxics along the UV beam's path. A release of a chemical anywhere along the UV beam is immediately detected and quantified. By comparison, traditional "point sampling" monitors may report only the part of a toxic plume that reaches the sensor's input port, which may impede the detection of compounds.



In a highly publicized December 2003 investigation, Hillsborough County, Florida, officials stated they were using the UVSentry to monitor the air around Coronet Industries in Plant City, Florida, for harmful gases associated with animal feed processing. Compounds of interest include SO₂, NO_x, and mercury. In the Coronet tests, the UVSentry detected the presence of SO₂ and NO in the atmosphere near the plant.

UVSentry Systems are being used to monitor the atmosphere at fence lines of oil refineries for BTEX and SO₂. The systems are being used to detect emissions at refineries in Durban South Africa, and New Orleans. Also the UVSentry's capability to detect ammonia emissions in the air near confined animal feeding operations has drawn interest from groups including the Sierra Club.

UVSentry Systems offered, range in price

from € 17,000 for a single-compound monitoring system to € 43,000 for a completely automated turnkey system that includes a notebook PC and a full spectral library of chemicals.

Additionally, a NIST-traceable calibration system is included with each UVSentry system to validate the data that the system acquires.

more info: info@oceanopticsbv.com

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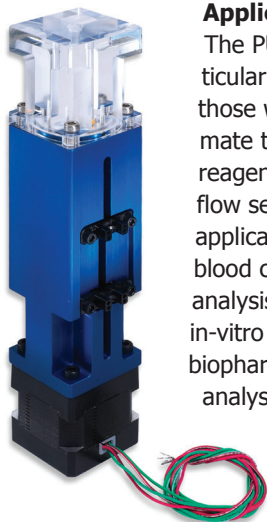
Xiris M

Positive Displacement Pump

A pulsed pump that displaces from 1 μ L up to 250 μ L

Displaces Volumes from 1 μ L

The PUMP-IT-1000 Positive Displacement Pump is a pulsed pump that displaces from 1 μ L up to 250 μ L of fluid with each pump or cycle. The amount of fluid displaced with each cycle is set via software. The amount pumped is precise to 0.3% with a repeatability of better than 0.5%.



Applications

The PUMP-IT is particularly useful for those wanting to automate the delivery of reagents into accurate flow setups. Typical applications include blood chemistry, blood analysis, particle sizing, in-vitro diagnostics and biopharmaceutical analysis.

PC/Software

Controlled

The pump connects to a PC via an RS-232 connection and a controller box and is controlled with software (included). The PUMP-IT is a low-cost alternative to expensive syringe, vacuum, peristaltic, and other pumps. You can not only select the displacement amount, you can also regulate the speed of the displacement via software.

Long Life Design

For accurate mixing and/or dilution of fluids, the pump has upper and lower limits that can be set mechanically and via the software. The pump provides a ripple-free and bubble-free flow. The pump's piston and head are made out of PEEK, while the body is made from aluminum. The piston in the pump will last about 1 to 2 million cycles before shows evidence of wear. The PUMP-IT has the flexibility to be positioned in any orientation.

Included with Each Pump

With the cost of the pump you also receive the controller box and power supply; an RS-232 cord; software; 10 feet of tubing; various nylon fittings, plug and caps; a 250 mL sample bottle.



PUMP-IT-1000:

€ 950,-

Meet Ocean Optics

- **Photonics Europe 2004**
April 27 - 29 Strasbourg (France)
- **Analytica 2004**
May 11 - 14 München (Germany)
- **Opto 2004**
May 25 - 27 Nurnberg (Germany)
- **Optatec 2004**
June 24 - 25 Frankfurt (Germany)
- **Photon 2004**
Sept 7 - 8 Glasgow (UK)

See our trade show schedule at
<http://www.oceanoptics.com/tradeshows.asp>



Colofon

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An offer you can't refuse:



See what people do with their old spectrometer once they have tested ours.

Do you want to get rid of your old spectrometer? Let us know and receive a discount of € 450,- when you buy an Ocean Optics spectrometer.