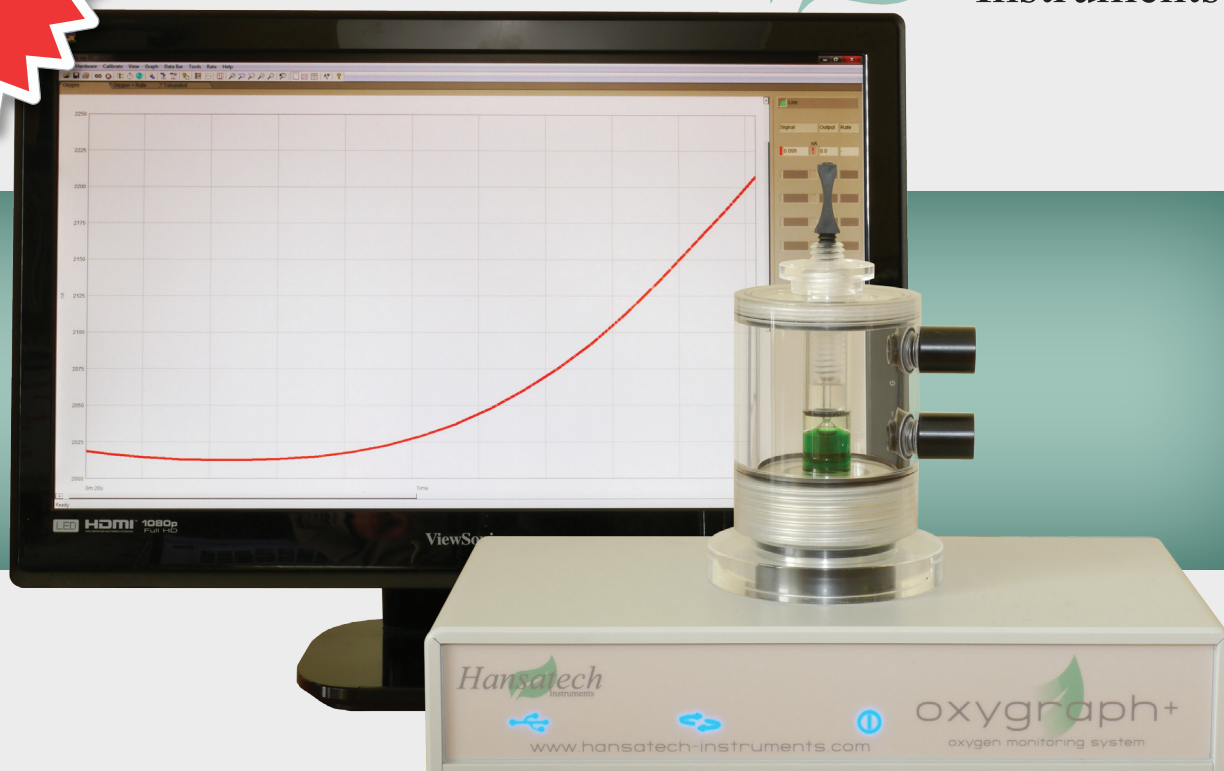




Hansatech

Instruments



Oxygraph Plus

Liquid-Phase Photosynthesis & Respiration Measurement System

- ✓ PC operated oxygen electrode control unit with USB2.0 connectivity
- ✓ Suitable for liquid & gas-phase samples with 0 - 100% oxygen concentration
- ✓ Clear cast acrylic DW1/AD oxygen electrode chamber with integral Clark type polarographic oxygen electrode
- ✓ Integral systems for measurement of pH & other ion-selective electrode signals with 16 bit resolution
- ✓ 24 bit high resolution measurement of oxygen signals removes the requirement for gain & back-off settings
- ✓ System expansion to 8 channels via purchase of additional components
- ✓ Windows® software for data acquisition, hardware control & data analysis
- ✓ Real time 0 - 4.5v analogue output of oxygen electrode signal



Hansatech Instruments

Hansatech Instruments is a small, British, scientific instrument company located in the heart of rural Norfolk. For over 40 years, our efforts have been concentrated towards the design & manufacture of high quality instrumentation for teaching and research in the fields of cellular respiration and photosynthesis. Our instruments are now in use in a wide range of programs in more than 100 countries throughout the world and have gained an enviable reputation for quality, reliability and excellent price/performance.



Products

Hansatech Instruments product range covers a wide range of applications in the fields of photosynthesis and cellular respiration. We manufacture oxygen measurement systems based on Clark type polarographic oxygen sensors, chlorophyll fluorescence measurement systems for both continuous excitation and pulse-modulated measurement techniques and optical instrumentation for the measurement of sample chlorophyll content.



Support

Purchasers of Hansatech Instruments products can be assured of ongoing support and prompt and efficient attention to enquiries at all times. Customers are encouraged to register their instruments on our website which allows access to our Support Ticketing System in addition to instruments manuals and software upgrades.



Scan the code for further information.

Overview

The Oxygraph Plus oxygen electrode system provides PC control of oxygen uptake or evolution measurements across a broad range of applications from studies of mitochondria and cellular respiration to measurements of isolated chloroplast suspensions in photosynthesis research applications with up to 100% oxygen concentration.

The Oxygraph Plus system consists of a highly sensitive S1 Clark Type polarographic oxygen electrode disc mounted within a DW1/AD electrode chamber and connected to the new Oxygraph Plus electrode control unit. The DW1/AD provides a highly versatile chamber for measurements of dissolved oxygen in liquid-phase samples of between 0.2 - 2.5ml with its clear cast acrylic construction providing excellent sample visibility & uniform illumination. Precise temperature control of the sample and electrode disc can be achieved by connecting the water jacket of the DW1/AD to a thermoregulated circulating water bath.

The next generation Oxygraph Plus oxygen electrode control unit combines striking aesthetics with enhanced features and functionality offering significant advances in performance over previous generations of electrode control units.

In conjunction with user-friendly O₂view data acquisition and system configuration software, the Oxygraph Plus electrode control unit provides an effective tool for the measurement of oxygen signals from the S1 Clark type electrode disc mounted in one of a range of liquid and gas-phase oxygen electrode chambers with quick and easy system calibration and configuration. In addition, Oxygraph Plus is equipped with integral systems to allow the calibration and simultaneous measurement of either a pH or other ion-selective electrode (ISE) signal e.g. Ca²⁺, TPP⁺ or an auxiliary input signal.

The Oxygraph Plus electrode control unit communicates with the PC via USB2.0 representing a significant advantage over the older RS232 serial communications and the well-known associated difficulties of using RS232 - USB adapters. Oxygraph Plus control units may be configured as single or multi-channel systems of up to 8 units allowing comparative measurements of multiple samples to be made conveniently and effectively. Multiple control units can be connected via a powered USB2.0 hub which is in turn connected to an available USB2.0 port of a Windows® PC.

Oxygraph Plus is designed with state-of-the-art electronics providing 24 bit high signal resolution for oxygen measurements with 16 bit resolution for ISE and auxiliary input signals. This significant development removes the requirement for gain and back-off associated with previous generations of control unit and also renders overscale problems obsolete. A 0 - 4.5V analogue output is fitted to the rear of the control unit allowing real-time output of the oxygen electrode signal to external recording/logging devices.

As with legacy oxygen electrode control units, Oxygraph Plus features an integral magnetic stirrer and all the electronics required to control and measure the signal from connected electrodes and is compatible with all existing liquid and gas-phase Hansatech oxygen electrode chambers and accessories.

Technical Specifications

Oxygraph Plus Control Unit

Measuring range:	Oxygen: 0 - 100% pH: 0 - 14pH Aux: 0 - 4.096V
Signal inputs:	Oxygen electrode (SMB) pH/ISE (BNC) Auxiliary (8 pin Mini Din)
Resolution:	Oxygen: 0.0003% (24 bit) pH: 0.0006pH (16 bit) Aux: 62.5µV/bit (16 bit)
Polarising voltage:	+700mV
Input sensitivity:	0 - 9000nA
Magnetic stirrer:	Software controlled between 150 - 900rpm in % steps
Sampling rate:	0.1 - 10 readings/s
Electronics:	Microcontroller: 16 bit high performance CPU running at 32 MHz ADC: Dual, Low power, 16/24 Bit Sigma Delta USB2.0
Communications:	
Analogue output:	0 - 4.5V O ₂ signal
Dimensions (HWD):	60 x 203 x 111mm
Weight:	0.45 Kg
Power:	12V dc @ 100mA 90Vac - 264Vac @ 1A

DW1/AD Oxygen Electrode Chamber

Suitability:	Liquid-phase respiration/ photosynthesis Clear cast acrylic
Construction:	
Sample chamber:	Precision bore, borosilicate glass tube
Sample volume:	0.2 - 2.5ml
Temperature control:	Water jacket connected to thermoregulated circulating water bath
Dimensions (DH):	65 x 105mm
Weight:	100g
Plunger:	Variable plunger assembly with central bore for sample additions

S1 Oxygen Electrode Disc

Electrode type:	Clark type polarographic oxygen sensor
Electrode output:	Typically 1µA at 21% O ₂
Residual current:	Typically 0.02µA in 0% O ₂
Response time:	10 - 90% typically < 5 seconds
Oxygen Consumption:	Typically <0.015µmol/hr ⁻¹