



ENABLING
MICROSCALE
RESEARCH

NEW MicroOptode Portfolio

Reinventing MicroOptode Technology

The NEW Unisense MicroOptode portfolio is powered by in-house technology and delivers unparalleled performance within our core application segments:

Zero-Noise Temperature Compensation:	Accurate oxygen quantification by unmatched temperature compensation
Ambient Light Filtering Technology:	Improved performance under fluctuating ambient light conditions, e.g. <i>in situ</i>
Bleach-protection:	Novel multi-component modulation improves lifetime with 50%
E²PROM:	Plug'N'Play with unique sensor identification and calibration retrieval
RadiSurf™ Adhesion Technology	Robust and long-term stability of dye matrix
Fast 430 μm Sensor:	For Eddy Covariance and other applications requiring <0.3 sec. response times

Opto-50
Slender for profiling

Opto-430
Fast and robust

Opto-3000
Long lifetime for monitoring

With our new in-house developed optical portfolio we offer you great advances within MicroOptodes and amplifier solutions for a wide range of applications within bulk oxygen measurements, microrespiration, eddy covariance, biogeochemical and biomedical applications.

OPTO-F1 UniAmp and OPTO-F4 UniAmp

Our portfolio includes two laboratory instruments with the new amplifier technology as well as field instruments.

Key features include:

Zero-Noise Temperature Compensation:

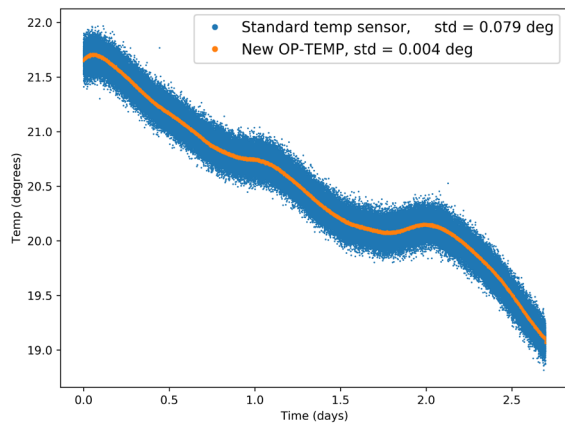
Our temperature sensor and meter design provide extremely low variation on the temperature measurement used for temperature compensation, resulting in much more stable oxygen concentration readings. This allows you to quantify smaller changes and e.g. determine lower respiration rates more accurately using our MicroRespiration System.

Ambient Light Filtering Technology:

All optodes can be influenced by ambient light, e.g. sun scattering in water, and this artifact has greatly been reduced by our exclusive filtering technology. The result is improved performance during coral reef, eddy covariance and other *in situ* studies.

Bleach-protection:

Conventional optode meters modulate the excitation light source by a simple one-component sine wave. The new OPTO UniAmp portfolio introduce a novel multi-component modulation technique which improves the signal vs. light dose ratio so that same signal can be obtained with less bleaching of the optodes, resulting in 50% increase in lifetime.



New MicroOptodes

Our new portfolio includes the Opto-MR version for our MicroRespiration System, a Fast variant, the robust Opto-3000 for monitoring, plus a significantly improved Opto-50 for insertion in samples and microprofiling applications.

RadiSurf™ proprietary adhesion technology ensures best-in-class performance and long-term stability. No need for manual entrance of sensor code and ensuring correct light intensity from first connection. With E²PROM connector the sensor is readily recognized by type, serial number and calibration, allowing seamless plug'N'play functionalities. The full portfolio integrates into our SensorTrace Suite software for full data acquisition and analysis. This allows you to combine optodes with our full range of Clark type sensors such as H₂S, H₂, NO, N₂O, pH, Redox and more, in your studies!

OXYGEN MICROOPTODE SPECIFICATIONS

Outside tip diameter	50 µm, 430 µm, 3000 µm
Position of sensing tip	MR, bare fibre, fixed exposed, retractable needle
Cable length	2.0 m, customization available
Connector	ST connector with E ² Prom
Waterproof	Yes
Pressure tolerant sensing tip	Yes, the sensing tip
Temperature range	0°C - 50°C
Guaranteed lifetime	Opto-430: 1 year or 1.5 million datapoints, whichever comes first Opto-430 fast and Opto-50: 1 year or 1.0 million datapoints, whichever comes first Opto-3000 1 year or 3.0 million datapoints, whichever comes first
Expected lifetime	+ 3 years in darkness at room temperature
Spatial resolution	Equals tip size, special slender 50 µm version
Temperature coefficient	Temperature compensation when using temperature sensor (ZNTC)
Response	Linear when calibrated
Response time	t ₉₀ : 50 µm < 5 sec., 430 µm < 3 sec., 430 µm Fast < 0.3 sec., 3000 µm < 15 sec.
Measuring range	0-100 % O ₂ (0-45 mg/L), optimal 0-50 % O ₂ (0-23 mg/L)
Detection limit	0.02% (0.01 mg/L), 50 µm: 0.05% (0.025 mg/L)
Interference	Some organic solvents and chlorine
No cross-activity	pH 1-14, CH ₄ , H ₂ , CO ₂ , H ₂ S, CH ₃ SH, NH ₃ , any ionic species

OPTO-F1 AND OPTO-F4 UNIAMP

Sensor	MicroOptode and Unisense Temperature sensor
Channels	1 or 4 (with individual temperature channel)
Power supply	USB
Measuring principle	Lifetime red excitation with near infrared detection
SensorTrace Logger (freeware)	Included
Other Unisense software	Optional: SensorTrace Suite
Sampling interval	Adjustable 1 sec. to 60 sec.
Software data output	Excel and CSV
Weight	~ 1500 g
Temperature range	-10°C to + 50°C (<90% non-condensing)
Temperature compensation	Zero Noise Temperature Compensation
Pressure compensation	Integrated



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