METERS

O_2 Detector Unit DUO1

The Detector Unit DUO1 is an imaging technology allowing easy 2D visualization of oxygen distributions in e. g. living, heterogeneous samples. The handheld digital camera records pixel by pixel sensor responses, capturing information of a whole array of sensor points. With VisiSens™ spatial and temporal changes of oxygen can be monitored. The software allows controlling the image recording process, and assists image processing and evaluation. An easy to use camera controlling user interface manages image acquisition and storage. Measurements which belong together can be organized in user defined sessions as separate folders and annotated with a free text comment. Acquired images can be single images or automatically recorded time series.

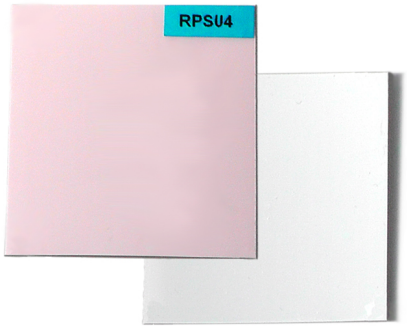
- Read-out of O_2 sensor foils
- More than 100,000 measurement points within one recorded image
- USB-powered portable microscope detector unit
- Small to medium size field of view (4.6 mm² to 13.5 cm²)
- Image processing and evaluation software included
- Visualize spatial and temporal gradients
- Time-lapse analyte movies

TECHNICAL

Specifications	
Camera chip	Enhanced color (CMOS)
Image resolution	1.3 megapixel (1,280 x 1,024 pixels)
Magnification	10-fold up to 220-fold, depending on adapter tubus used
Field of view	□ 1.6 x 1.3 mm^2 to □ 3.6 x 3.0 cm^2; typically □ 1.2 x 1.0 cm^2
Output	15 fps live video preview (no storage) and 0.5 fps full-resolution picture storage (.png)
Interface	USB 2.0, high speed USB transmission
Number of LEDs	8
Material	All-aluminum housing
Dimensions	Length 10 cm, diameter 3.8 cm
Weight	170 g (without adapter tubus)

SENSORS

O_2 Oxygen Sensor Foil SF-RPSu4



The SF-RPSu4 for measuring oxygen allows non-invasive mapping of metabolic activities as well as changes over time periods from seconds to months. The fluorescent sensor foil is attached on a living or dead sample surface or a transparent glass or disposable vessel. A sensor film on the foil translates the oxygen content into a light signal. The sensor foil is available in different sizes and can easily be cut in any desired shape. Read-out is done contactless with the imaging Detector Unit DUO1 or the VisiSens TD.

- 2D read-out
- Contactless, direct sensing or through transparent walls
- Visualize spatial and temporal gradients
- Numerous measurement points in one image

TECHNICAL

Specifications#	
Measurement range	0 – 100 % air saturation (0 – 20.9 % O_2)
Response time* (t_{90})	Gas phase: < 8 sec. Dissolved: < 30 sec.
Specifications using VisiSens TD read-out	
Limit of detection**	0.03 % air saturation
Precision (temporal)***	± 0.02 % air saturation at 0 % air saturation ± 0.1 % air saturation at 100 % air saturation
Precision (spatial)****	± 1.5 % air saturation at 0 % air saturation ± 3.0 % air saturation at 100 % air saturation
Properties	
General sensor temperature working range	from + 5 to + 45 °C
Compatibility	Aqueous solutions, pH 2 - 10
Size of sensor foil	Standard 40 x 40 mm² Min. 5 x 5 mm²

*typical data which may strongly differ with adapting the imaging set-up to specific needs

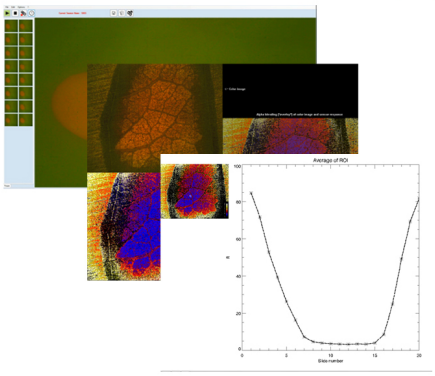
**typical data of LOD of a defined ROI (> 6,000 pixels) over time at + 20 °C, excluded ambient light, FoV 8 cm x 6 cm, VisiSens DU01 strongly differs

***typical data of precision of a defined ROI (> 6,000 pixels) over time at + 20 °C, excluded ambient light, FoV 8 cm x 6 cm, VisiSens DU01 strongly differs

**** typical data of spatial standard deviation in defined ROI (> 6,000 pixels) at + 20 °C, excluded ambient light, FoV 8 cm x 6 cm, VisiSens DU01 strongly differs

#VisiSens™ is no approved medical device

SOFTWARE



O_2 VisiSens™ AnalytiCal 1 Software

This software allows controlling the image recording process and assists image processing and evaluation. An easy-to-use acquisition module manages image recording and storage. Measurements which belong together can be organized as user defined sessions. Single images or time series measurements can be performed to analyze both spatial and temporal changes in analyte concentration. The software's evaluation module allows image processing and multiple options for image display. For analysis a number of functions are supplied.

- Display the sensor response in false color image
- Display the actual pixel information
- Display ROI statistic
- Interactive x- and y-axis profiles
- Z-axis profiles for plotting ROI average at defined coordinates
- Follow kinetics through a time series and display as 2D-plot
- Side-by-side image comparison of selected images
- Alpha blending of false color sensor response with color image

TECHNICAL

	Minimum System Requirements	Suggested Configuration
Operating system	Microsoft® Windows® XP, Vista™ or Microsoft® Windows® 7 (32 or 64 Bit)	Microsoft® Windows® 7 (64 Bit)
Processor	2.4 GHz Pentium IV or adequate AMD Athlon Processor	Intel 'i ' series or adequate AMD Processor (or higher)
RAM	2 GB	4 GB or more
Memory capacity for graphic board	256 MB	1 GB or more
Hard disk	1 GB free memory	250 GB free memory
USB	USB 2.0	USB 2.0
Screen resolution	1366 x 768 (16:9) 1280 x 800 (16:10) 1280 x 1024 (5:4)	1680 x 1050 or higher (16:9 or 16:10)

GET IN CONTACT

- **Request more info**
- **Request a quote**
- **Rent-a-meter**

PreSens Precision Sensing GmbH
Am Biopark 11, D-93053 Regensburg
Phone +49 941 942 72 100
Fax +49 941 942 72 111
info@PreSens.de