## oroboros instruments high-resolution respirometry

# O2k-Info



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Mitochondrial Physiology Network 19.21(01): 1-4 (2015) Updates: <u>http://wiki.oroboros.at/index.php/MiPNet19.21\_DatLab\_6</u>

## **DatLab 6: innovations**

Fasching M, Capek O, Gradl L, Fleischmann S, Gnaiger E

OROBOROS INSTRUMENTS

O2k high-resolution respirometry Schöpfstr 18, A-6020 Innsbruck, Austria Email: <u>instruments@oroboros.at</u> <u>www.oroboros.at</u>



## 1. General

1.1 **Menus**: More user-friendly structure of the menus.

🏈 D	atLab (G-0001)								
File	Oxygraph-2k	TIP2k	Experiment	Calibration	Graph	Layout	Marks	?	Advanced

1.2 **O2 Calibration**: Separate tabs are now available for (1) calibration of the signal, (2) editing parameters for the slope, and (3) info.

In O2 Calib Calib Calib, Calib, Calib, Calib, pX Calib, Calib,   02k P1 P1	O2 Calibration Channel: 1A: O2 Signal Slope Det	POS ails	# 1039	1				
	Calibration source	Active file				Calib. POS #	1039	
	Copy from file	Oxygen concentration cO2 [µM]	Select Mark		POS signal: Recorded [V]	Slope uncorrected [pmol/(s.ml)]	Temperature [°C]	Barometric pressure pb [kPa]
	Air calibration: c1	180.15	<mark>B1 </mark> ▼	R1 🛛	2.1102	3.06	37.0001	94.80
	Zero calibration: c0	0.000	R0 💌	R0	0.0092	0.09	37.0001	94.80
		02 solubility (	Gain, G [V. actor of medium	/μΑ] , FM	1 0.920	Medium MiB	05	Reset to system default

1.3 Mark statistics and Graph plots: De-select display and export of channels not in use to provide a simpler overview.

<u>F</u> ile	<u>O</u> xy	graph-2k	<u>T</u> IP2k	Experiment	<u>C</u> alibrati	on <u>G</u> ra
ntrati	:	O2k Cont Connect t	rol o O2k a	at start		F7
D2 Conce	✓	Show cha Show cha Show cha	nnel: Ai nnel: Po nnel: Sp	mperometric, otentiometric, pectrofluorim	Amp pX etric	

#### MiPNet19.21 DatLab 6: innovations

1.4 **Instrumental background**: The parameters are calculated in the O2 Calibration\Slope window from the selected marks, the linear regression is shown, and the parameters are saved automatically for instrumental background correction of oxygen flux.



1.5 **Power-O2k (several O2ks in one lab)**: The Power-O2k number can be defined in the 'O2k-Control' window, is prominently displayed in the selected graph, on the labels of axes, and in the DatLab file name. The previous chamber labels AB, CD, EF, GH etc. have been replaced by P1, P2, P3, P4 etc. All chambers are labelled as A (left) and B (right).



### 2. Marks

2.1 All **marks** can be copied from one plot to another.



- 2.2 The **average value** of the marked section of the plot is displayed in the window 'Edit mark information'.
- 2.3 A new field "Value" in the window 'Edit mark information' can be used to assign a numerical value to the mark, e.g. the concentration of a substance relevant for the marked section of the experiment.

Edit mark	information		
Start Stop N Points Average	00:00:09 00:00:18 4 -5.7458		
Name Value	01	2.50000	
Comment			
		Cancel	Save

2.4 **Redesigned Marks Statistics / Export to clipboard functions**: After selection of a plot containing marks, values for averages, maximum and minimum values are also displayed for other plots over the same marked sections. Further, it is possible to filter the plots for display according to channel type or chamber.

Mark Statistics	Mark Statistics	Select	
Select Show	Select Show		C Maximum
Chamber Plot for marks 02k P1 C A B C Both	Channel   Oxygen, 02   Amperometric, Amp   Potentiometric, pX   System channels	Plots ✓ 34: 02 Concentration ✓ 34: 02 Flux per V	C Minimum Sort by C Time C Mark name

3

### 3. Innovations for O2k-MultiSensor applications

3.1 **O2k Control window**: The different channel types can be controlled in separate Tabs in a generalized format, comparable to the O2-Channel.

Oxygraph-2k (G-0002)			
02k Control 0xygen, 02	Amperometric, Amp	Potentiometric, pX	l
02k serial number	G	-0002	
Power-02k		P1	
Chamber	Α	В	
Channel: Amperometric, A Gain for sensor	mp 1000 -	1000 -	
Polarization voltage [mV]	100	100	
Amp sensor #	C-0116	B-0112	
		Save	
			Send to Oxygraph-2k
	Load setup Save	setup	Cancel

3.2 **Calibration**: Improved calibration for fluorescence and amperometric applications: Concentrations are automatically taken from the respective marks, a background slope correction is available for Amplex calibration.

Amp Calibration		
Channel type: 1A: Amp Active sensor #		
Channel label: H2O2 Unit: µM 💌	]	
Signal Slope		
Current calibration	Calibrate	
Calibration source	Select marks Enter concentration	Copy from file
Calib. Sensor #	✔ HP0 Name Time Signal [V] Slope   ✔ HP0.1 HP0 00:18:57 0.10130 0.00593 □	Conc. [µM]
Name Signal [V] Slope Conc. [μΜ]   HP0 0.28674 0.03665 0.00000	HP0 HP0 HP0 HP01 HP01	0.00000
HP0.1 0.32165 0.02976 0.10000		E
		-
	Gain [V/µA] 1000 Polarization voltage [mV] 100	
Sensitivity [V/μΜ] 0.3491 R²=1.00000 Intercept [V] 0.2867	Copy Copy	
	Reset to Intercept [V] 0.0000	
	system default	
	Cancel	Calibrate

3.3 **New graph layouts** are available for specific O2k-MultiSensor applications.