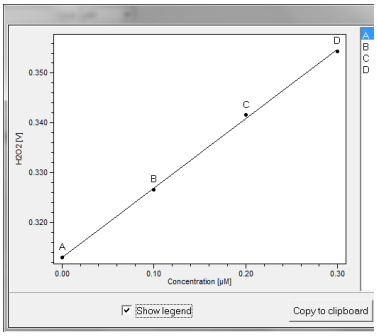
Mitochondrial Physiology Network 19.19(02):1-6 (2015)
Updates: http://wiki.oroboros.at/index.php/MiPNet19.19_DatLab_6

Version 02: 2015-06-15

DatLab 6: innovations



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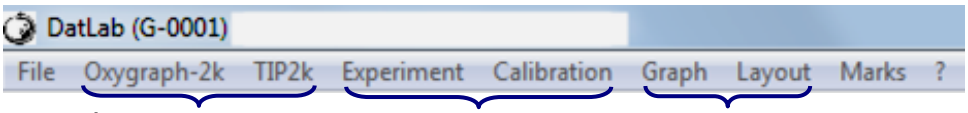
1. General

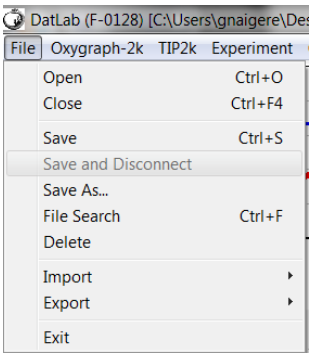
1.1. Menus: New user-friendly structure of the menus.



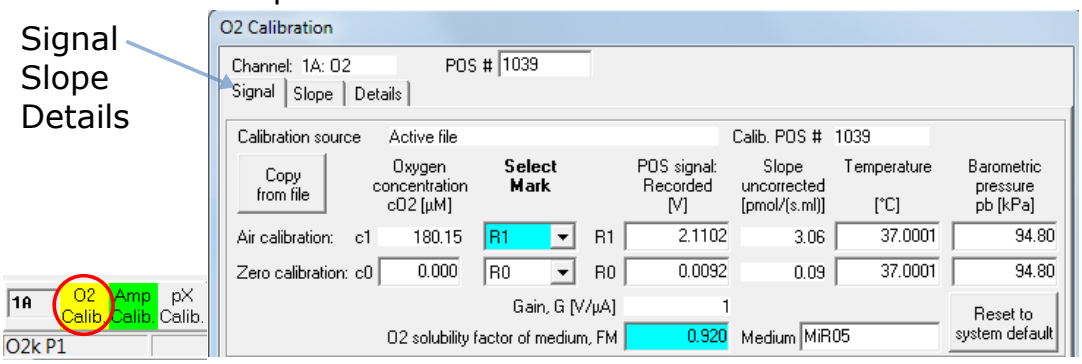
1. File
2. Hardware: Oxygraph-2k and TIP2k
3. Experiment and Calibration
4. Graph / Layout
5. Marks

1.2. File

Save and Disconnect: This function is moved from the Oxygraph-2k menu to the File menu.



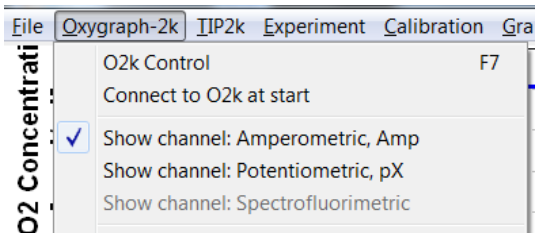
1.3. O2 Calibration: Separate tabs are available for



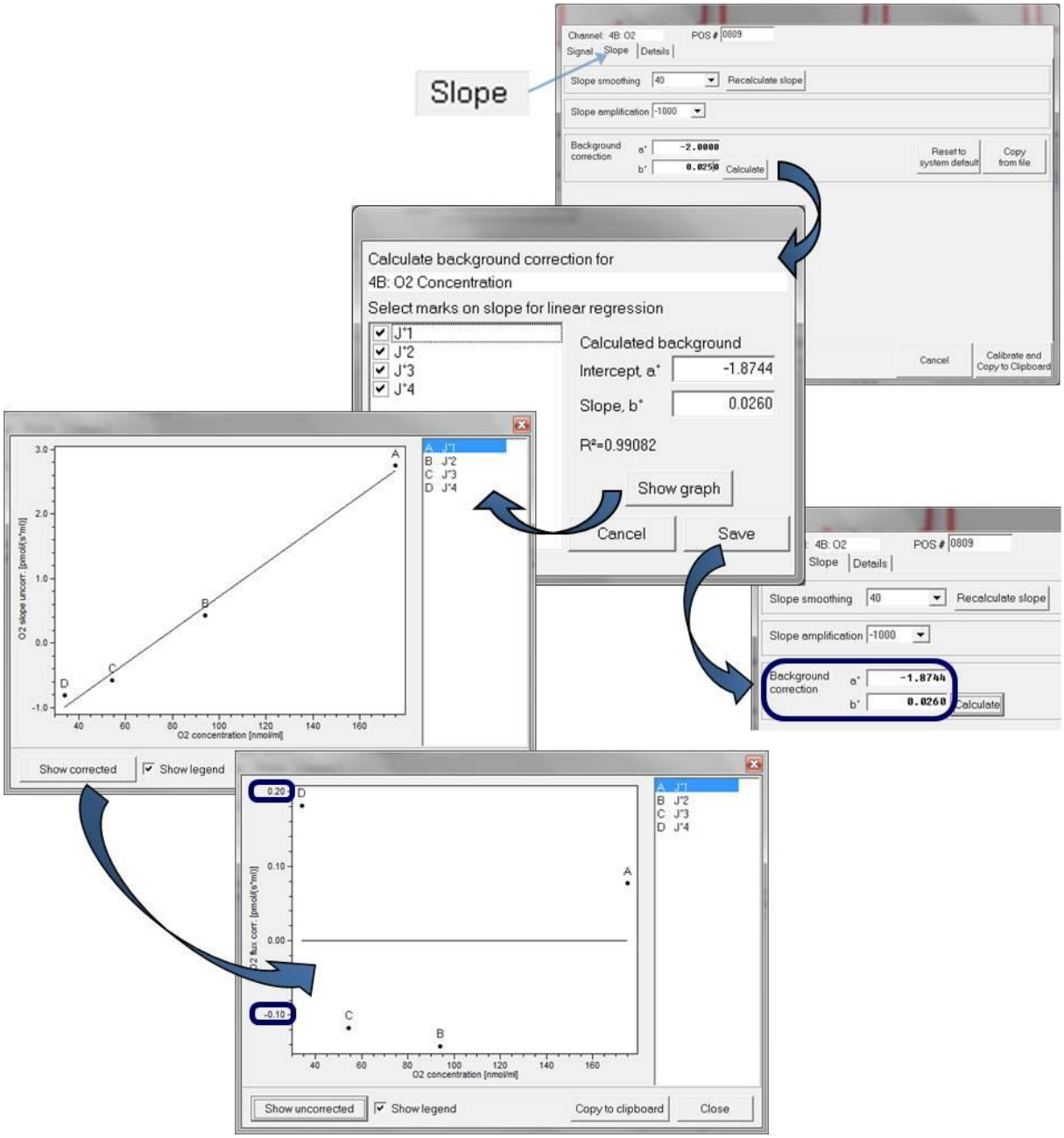
1. Signal: two-point calibration of the signal.
2. Slope: edit parameters for the slope (flux or flow).
3. Details: information on calibration parameters.

1.4. Show channel

Deselect display and export of channels not in use to provide a simpler overview.



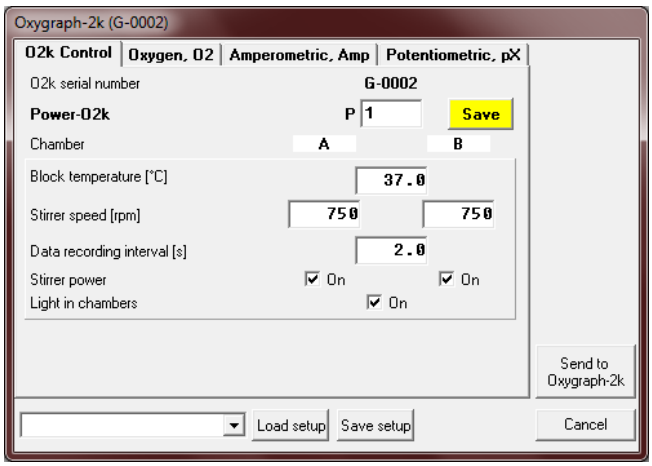
2. Instrumental O2 background

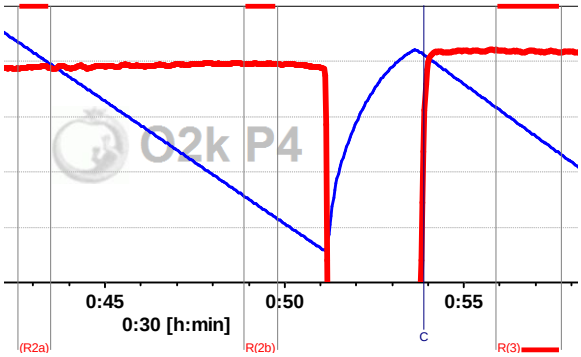


The parameters are calculated in the O2 Calibration\Slope window from the selected marks, the linear regression is shown, and the parameters are saved automatically for instrumental background correction of oxygen flux.

3. Power-O2k: several O2ks in the 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).



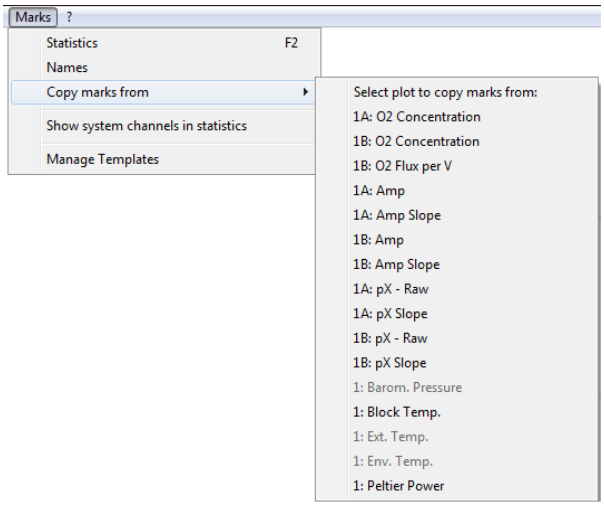


4. Marks

4.1. Copy marks from

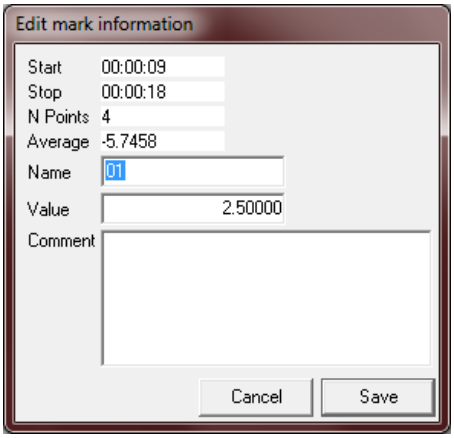
All marks with mark names can be copied from selected plot.

1. Click on the plot in the graph, onto which marks should be copied.
2. Pull down window Copy marks from.
3. Select the plot from which marks should be copied.



4.2. Average

The average value of the marked section of the plot is displayed in the mark window (open by a click on the mark bar).



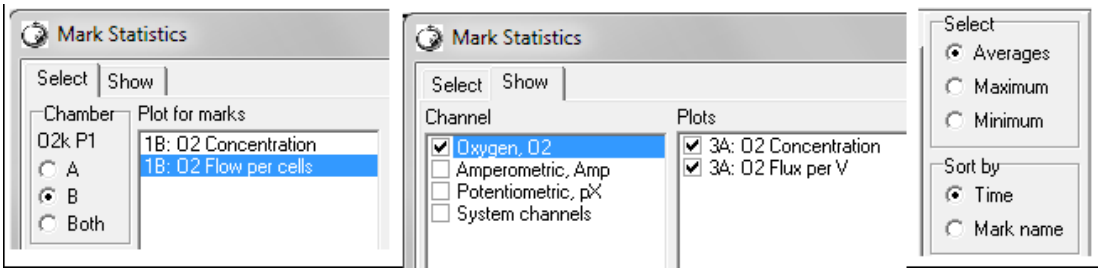
4.3. Value

The "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.

4.4. Marks Statistics / Export to clipboard

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.

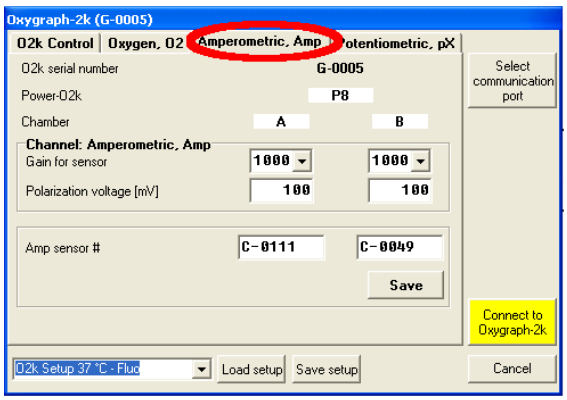


5. Innovations for O2k-MultiSensor applications

5.1. O2k Control

The channel types are configured in separate Tabs in a generalized format:

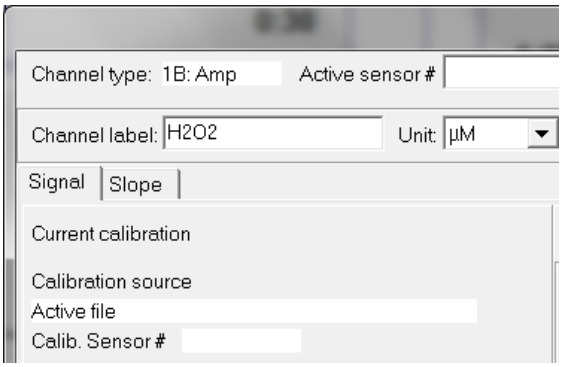
1. Oxygen, O2
2. Amperometric, Amp
3. Potentiometric, pX



5.2. Calibration

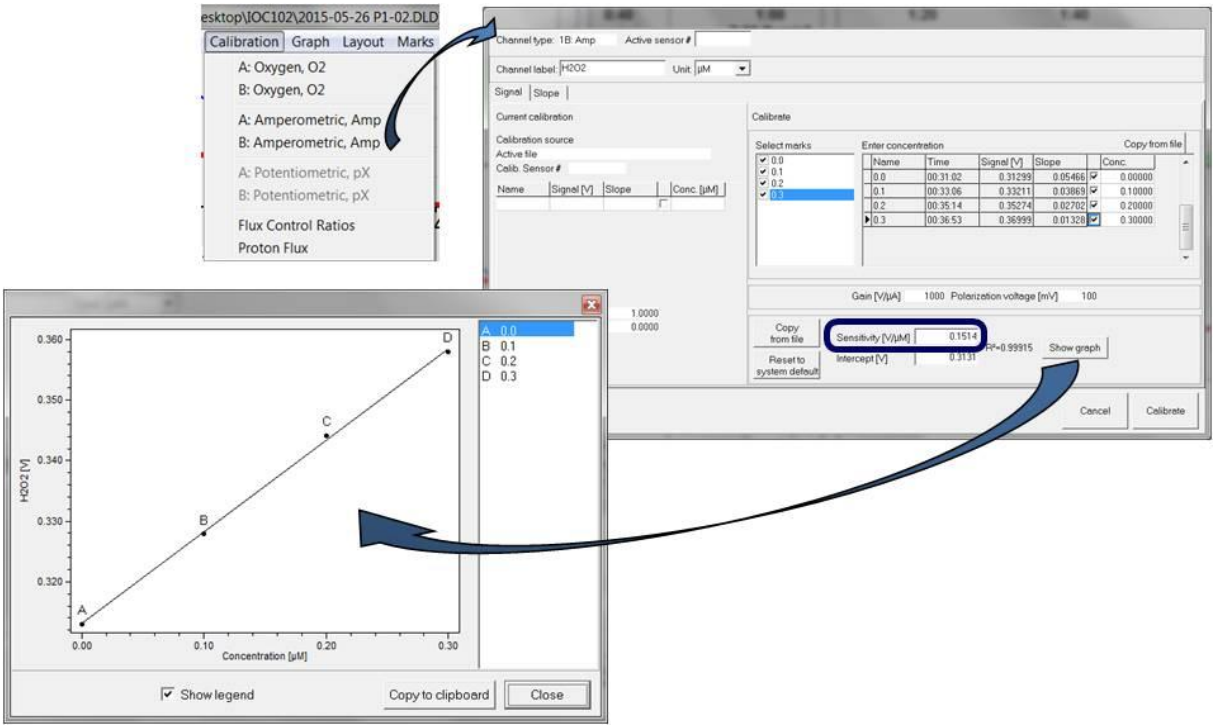
Calibration Tabs for amperometric (fluorometric) applications.

Channel label: Each channel can be labelled, to show the signal with corresponding units in the graph.

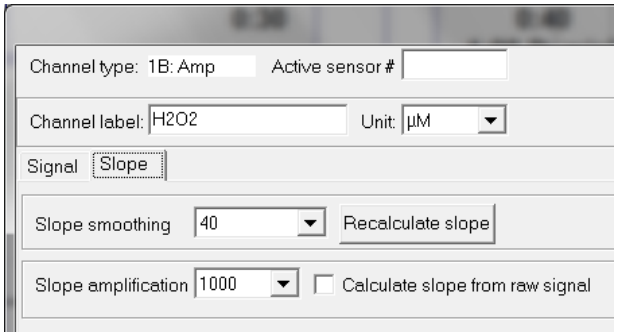


Example: Amplex red and calibration with H_2O_2 titrations. H_2O_2 concentrations are automatically retrieved from the marks set on the fluorometric signal,

a background slope correction is available, and the linearity of calibration can be viewed in a graph.



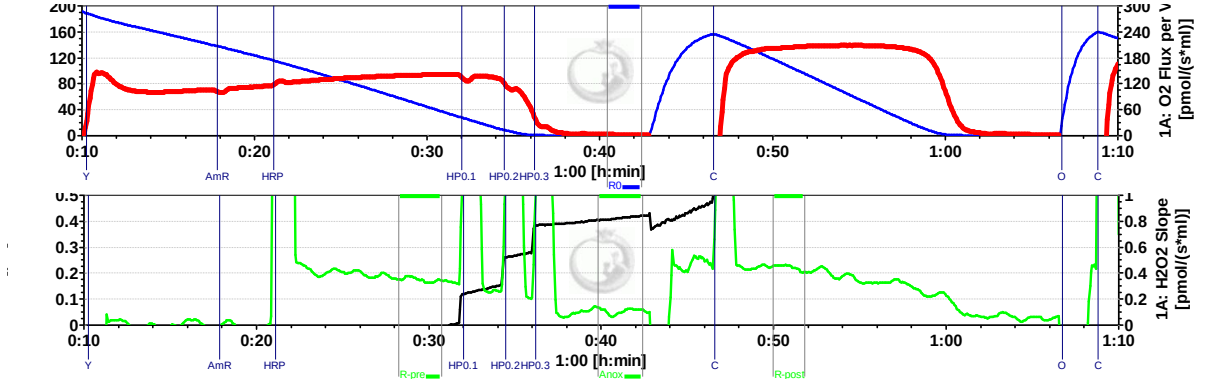
5.3. Slope



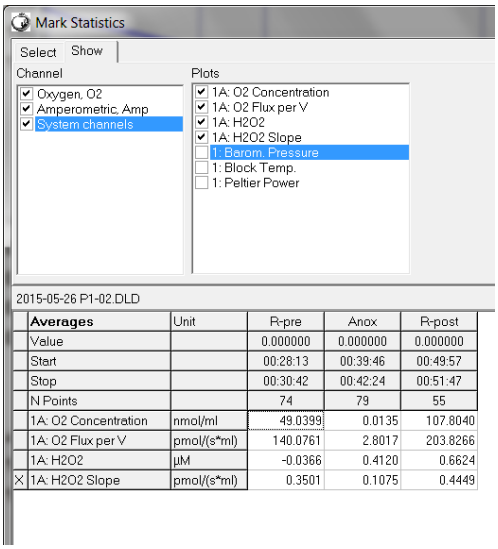
The slope of any O2k-signal can be calculated with different levels of smoothing and amplification. Recalculate slope any time after resetting the smoothing value, which corresponds to the number of data points used for calculation of the slope.

5.4. Graph layouts

Standard Graph layouts are available for specific O2k-MultiSensor applications, which can be easily modified and saved by the user.



6. System channels



Averages	Unit	R-pre	Anox	R-post
Value		0.000000	0.000000	0.000000
Start		00:28:13	00:39:46	00:49:57
Stop		00:30:42	00:42:24	00:51:47
N Points		74	79	55
1A: O2 Concentration	nmol/ml	49.0399	0.0135	107.8040
1A: O2 Flux per V	pmol/(s*ml)	140.0761	2.8017	203.8266
1A: H2O2	µM	-0.0366	0.4120	0.6624
1A: H2O2 Slope	pmol/(s*ml)	0.3501	0.1075	0.4449

System channels (barometric pressure, block temperature, Peltier power) are not routinely shown in the Mark statistics table. These channels can be shown selectively in the Mark Statistics Tab Show, or be selected generally in the Marks menu. By deselecting the system channels, the Mark statistics table becomes simpler, which is an important advantage in O2k-MultiSensor applications.