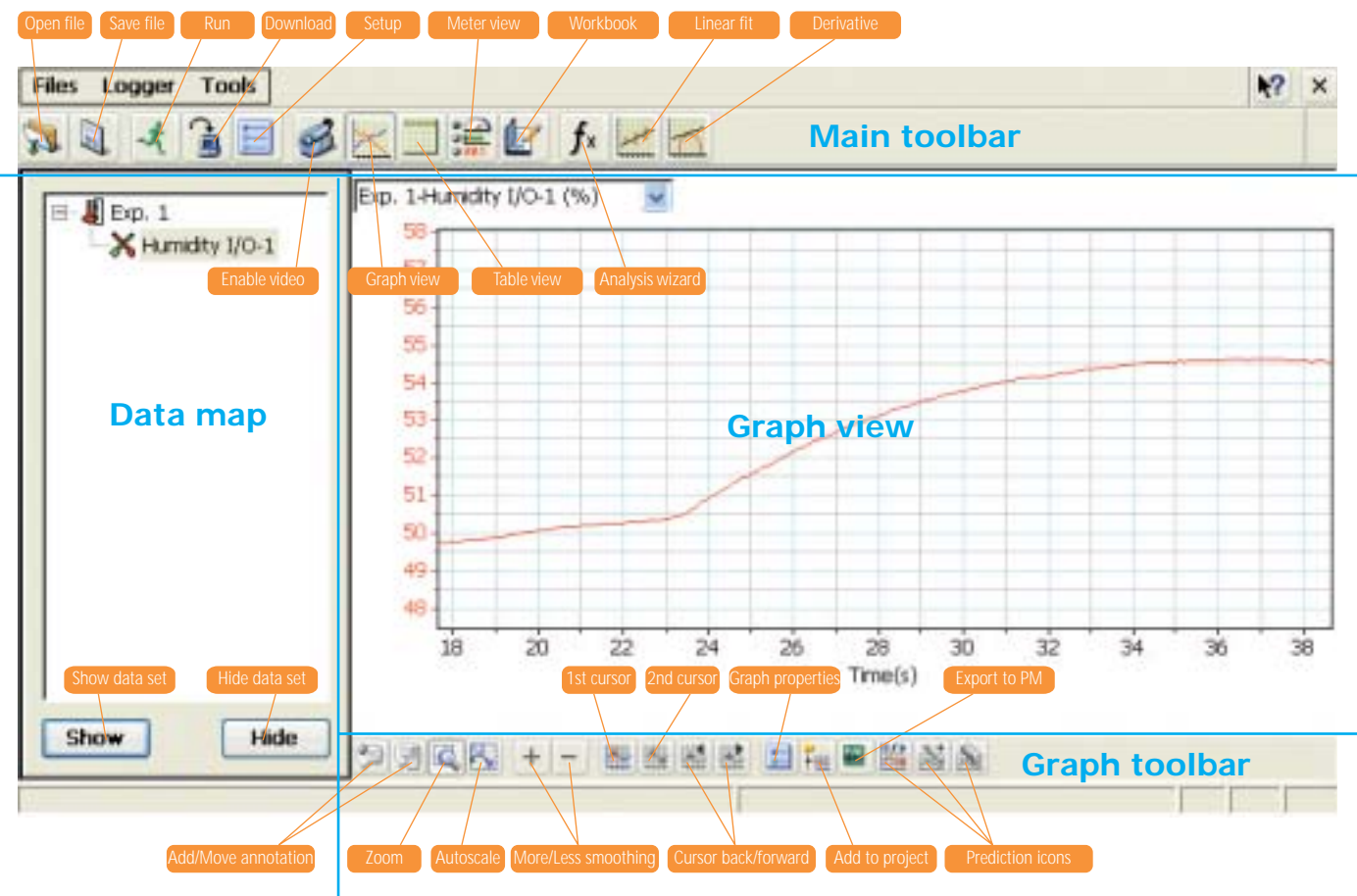


## MultiLab Screen Layout

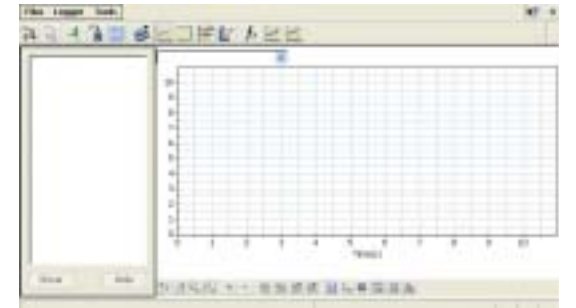


## Quick Start

### 1. Launch MultiLab

Go to Start > Programs > Science & Math > MultiLab to launch MultiLab. This will launch the MultiLab application in the default Graph view.

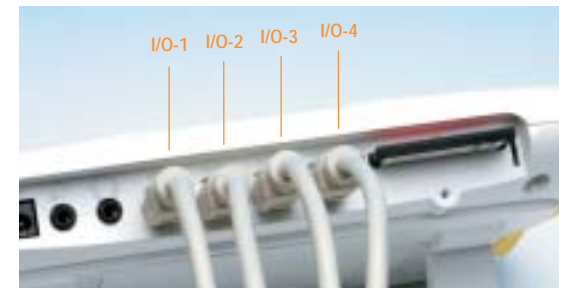
To create a MultiLab desktop shortcut, open the My Nova icon on the desktop and navigate to the \Program Files\Fourier Systems\MultiLab CE folder. Tap once on the MultiLabCE.exe file (do not open this file) and on the main menu, select File > Send To > Desktop as Shortcut. You may now launch MultiLab from the Nova5000 desktop.



Default MultiLab window


### 2. Connect the sensors

Connect between one to four sensors to the Nova5000 sensor inputs. The arrow on the sensor plug should be face down. Using splitter cables you can connect up to eight sensors at a time. Refer to the *MultiLab User Guide* for more details.



MultiLab sensor interface

### 3. Perform sensor setup

- On the **Logger** menu, select **Setup** or tap the Setup icon  on the main toolbar. The Setup window will open.
- On the **Sensors** tab, the **Auto Detect Sensors** check box should be selected (this is the default setting). The connected sensors will be automatically displayed in the Input fields. Unselect the **Auto Detect Sensors** check box to manually select a sensor from the drop-down menu.
- Tap the **Rate** tab. In the **Rate** drop-down menu, select the required number of samples per second/minute/hour.
- Tap the **Samples** tab. In the **Samples** drop-down menu, select the required total number of samples to record. The maximum recording time will be displayed.
- Click **OK**.

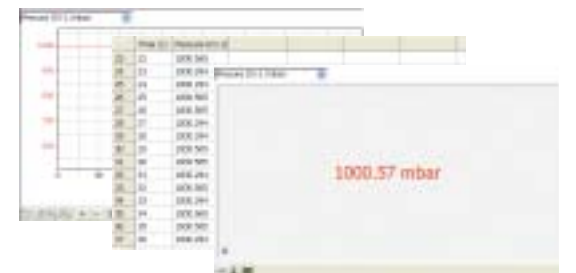


Setting up the sensors

### 4. Select display

On the main toolbar, select one of the three MultiLab displays by tapping one of the display icons:

Graph , Table  or Meter 



The different MultiLab displays

## MultiLab Support


Please contact Fourier Systems with any problems or questions:

Tel: 1-866-771-NOVA

e-mail: [support@fourier-sys.com](mailto:support@fourier-sys.com)


Web: [www.fourier-sys.com/support\\_support.html](http://www.fourier-sys.com/support_support.html)

## 5. Start recording data

On the Logger menu, select **Run** or tap the **Run** icon  on the main toolbar. As soon as you tap **Run**, MultiLab will begin logging data. You will see the data recorded in the main MultiLab window.

*Note: If the sampling rate is higher than 100 samples per second, the data will be automatically displayed on the graph once the recording has stopped.*

## 6. Stop recording data

The experiment will stop once the predefined sample size is reached, or by tapping the **Stop** icon .

## 7. Save the data


Once collected, your data is added to the Data Map.

- To save your data set, on the **File** menu select **Save File**. This will save all the open data sets in the Data Map under one file name.
- Select **Save As** to save a previously saved file under a different name.


## 8. Analyze the data

With the experiment graph open in the MultiLab window, use the first cursor to display individual data values, to select a curve or to reveal the hidden Y-axis value.

Use two cursors to display the difference between two coordinate values or to select a range of data points.


**To display the first cursor:** Tap on an individual data point or tap  on the graph toolbar to display the cursor. You can tap and drag the cursor onto any other point on the plot, or onto a different plot. For finer cursor movements use the forward and backward icons on the graph toolbar.


The coordinate values of the selected point will appear in the information bar underneath the graph.

**To display the second cursor:** Tap again anywhere on the graph area or tap  on the graph toolbar.


The information bar will now display the difference between the two coordinate values. If the x-axis is time, 1/dt will also be displayed.

**To display graph statistics:** On the main menu, go to **Tools > Analysis > Statistics** to view statistics such as average, standard deviation, and so on.

**To apply linear curve fit:** Use the cursors to select a range on the graph, and then tap  on the main toolbar.

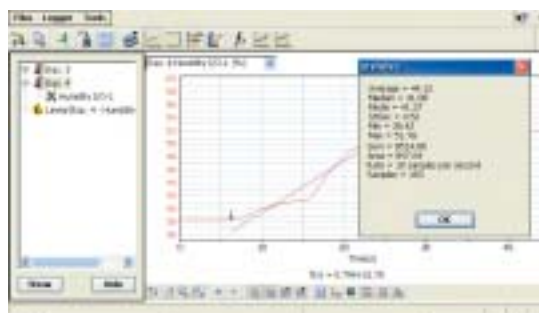
**To take a derivative of a plot:** Use the cursors to select a range on the graph, and then tap  on the main toolbar.

Refer to the **MultiLab User Guide** for more information on using the Analysis Wizard.

*Note: To apply MultiLab's more advanced Analysis tools, go to **Tools > Analysis > Analysis Wizard**, or tap  on the main toolbar to launch the Analysis Wizard.*



Saving your recorded data




Analyze your data using MultiLab



The Analysis Wizard

## 9. Export Data to PlanMaker

Tap the **Export to PM** icon  on the graph toolbar to export the displayed experiment data to the PlanMaker spreadsheet application.

MultiLab will create a new .csv file in the **MultiLab Data** folder. This .csv file can be launched using PlanMaker.

## Calibrating Sensors

MultiLab also includes a calibration feature for calibrating any sensor you connect to the Nova5000.

- Go to **Logger > Calibrate Sensors** and select the required sensor from the sensor drop-down list.
- In the **Calibration** dialog box, in the **Real** value field enter the real value you expect to read from the sensor during the experiment. In the **Measured** value field, enter the actual value measured using the sensor. You can perform calibration for one or two points.
- To restore the original sensor calibration values, tap **Restore defaults**.



Exporting data to the PlanMaker spreadsheet application




Performing two-point calibration on your sensor

## The Workbook

The Workbook is an online library of experiment manuals called worksheets that appear in the format of a Web page. Each worksheet includes an experiment template that automatically configures the MultiLab at the push of a button. To begin recording, all you need to do is click **Run**.

Every time you run an experiment from a worksheet, MultiLab opens a new project file with the same predefined setup.

### To open a worksheet:



- On the main menu, go to **Tools > Workbook > Open worksheet**.
- Double tap the required .htm file to open the worksheet. Use the scroll bar, hyperlinks and the **Back** and **Forward** buttons to navigate throughout the worksheet.
- Tap **Launch** at the bottom of the worksheet to configure MultiLab. You are now ready to start the experiment. Tap **Run**  on the main toolbar to begin data logging.

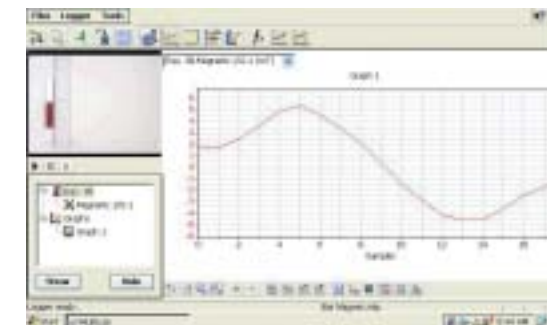


Experiment Workbook window

## MultiLab Demo Experiment

A demo experiment named **Bar Magnet** is stored in the MultiLab data library. This demo includes both the recorded data and a video recording of the actual experiment. You can replay the experiment and watch the data being plotted on the graph in synchronization with the video.

To play the demo, tap the  icon and open the **Bar Magnet.mlp** project. Tap  underneath the video window to play the experiment.



Bar Magnet demo experiment window