LabChart
ARC Workshop for BMEs
by: Shaza Khan
Agenda

• Table of Contents
• Courses that Utilize LabChart
• LabChart Uses
• Important LabChart Tools
  o Sample ECG Reading
  o Sample EMG
  o Adjusting the Number of Channels
  o Zooming Option
  o Adjusting the Channel Range
  o Using The Marker Tool
  o Channel Calculations
  o Finding Data
  o Exporting Data
• Conclusion
What is LabChart?

• LabChart is a software program.
• “LabChart software combines the familiar simplicity of a traditional strip chart recorder and oscilloscope with the powerful analysis features of a digital acquisition system.”
Courses that Utilize LabChart

- BME 100
- BME 315
- BME 405  □ Extensive Use of LabChart
- Other classes may use it as a supplement to the main material
LabChart Uses

- LabChart is used to collect and analyze several types of data.
- In the BME curriculum at IIT, LabChart is often employed whenever signals such an ECG, EMG or EEG are taken.
Sample ECG Reading
Sample EMG Recording
Adjusting Number of Channels

1. Open LabChart and go to the Setup menu.
2. Select Channel Settings.
3. In the Channel Settings window, adjust the number of channels to your desired value.
Zooming Option
Adjust Channel Range (Height)

Increase Range

Decrease Range
Using the Marker Tool

Marker tool used for making relative measurements

Δ123.000 mmHg
Channel Calculations

- **Arithmetic**
  apply equations to channels, including math equations, trigonometric functions, logarithmic functions, noise and filtering functions.

- **Cyclic Measurements**
  analyze periodic waveforms to derive functions such as rate, period and frequency as well as cyclic mean, maximum, minimum and height.

- **Derivative**
  display the first and second derivative.

- **Digital Filter**
  select from six online or offline filter types: low-pass, high-pass, notch, narrow band-pass, band-pass and band-stop.
Channel Calculations (cont)

- **Integral**
  measure areas under waveforms.

- **Shift**
  shift data backwards or forwards in time.

- **Smoothing**
  remove unwanted high frequencies and noise from a waveform.

- **Spectrum**
  display Total Power, Percentage Total Power, Maximum and Minimum Power, Maximum and Minimum Power Frequency, Mean Power Frequency, Median Power Frequency, Standard Deviation Frequency and Spectral Edge Frequency.

Taken from AdInstruments
Finding Data

• The Find and Select feature allows you to quickly find specific points of interest within a data file.
  - comments
  - waveform peaks
  - waveform troughs
  - block boundaries
  - maximum or minimum values
Finding Data

The screenshot shows a window for finding data, which is part of the AdInstruments software. The window includes options for searching in the 'Current channel', with search direction options for 'Go' and 'Local maxima'. It also allows for setting a threshold percentage and selection options. The window includes buttons for 'Find' and 'Cancel'.
Exporting Data to Excel

[Image showing a table with data and a screen showing the process of exporting data to Excel]

Taken from AdInstruments
References and Conclusions

• LabChart support can be found online here:
  o http://www.adinstruments.com/support/techhelp/support-procedure/
• LabChart online forums can be found here:
  o http://www.adinstruments.com/forum/
Questions?