

Course Overview

Reduce the time lag between acquiring signals and reporting data by learning how to use LabChart's analysis and extraction functions more effectively. This course will teach you how to display the features of your data that are most relevant to your experiment, and how to convert your data into numerical values for use in applications including Microsoft Excel and other analysis packages. In addition, you will learn how to extract images to use in reports.

Our experienced staff will provide extensive instruction and ensure that you receive the level of attention you require. To consolidate your learning, you will have access to an individual computer and hardware terminal, and be guided through a series of exercises using relevant data files. As well as new skills and confidence, you will take home detailed technique notes and support materials.

Who should attend?

This course is useful for all PowerLab users who can already competently acquire data, and now want to use more LabChart functions to increase experimental output. It will also suit scientists who are unsure how to extract relevant parameters from their data.

This course is suitable for educators and researchers who have some experience with PowerLab systems and LabChart software in their laboratories, or those who have completed our introductory Level I training course, *The Basics of Data Acquisition*.

Learning Outcomes

At the end of this training course you will be able to:

- Display incoming voltage signals as meaningful units
- Obtain and display useful variables (e.g. rate, maximum, integral and derivatives) from raw data, and apply smoothing and arithmetic calculations
- Overlay and average waveforms in a single channel based on time or event
- Extract numerical values from your data into a spreadsheet either manually or automatically
- Export data into other applications (i.e. Microsoft Excel) for further analysis, and extract images to illustrate reports
- Quickly and easily find relevant LabChart features and software updates

Course agenda

Calibrating Data

- Applying meaningful units to a voltage signal using a 2-point units conversion
- Defining units
- Using the Multi-Point Calibration Extension for non-linear conversions

Processing Signals

- Using Cyclic Measurements to calculate and display features of your waveform including rate, frequency and maximum height
- Integral Function - how to display the area under a signal waveform
- Derivative Function - how to display the differential of your signal waveform
- Smoothing Function - when to use smoothing, and how much to apply
- Arithmetic Function - applying simple mathematic equations (eg RMS, threshold and smoothsec)
- Excluding out-of-range data from analysis

Oscilloscope Functions

- An overview of the Scope View, including options to view by time block or event
- Setting up triggering
- Overlaying and averaging waveforms
- Removing individual waveforms from the average

Extract Numerical Data

- Setting up Data Pad and choosing which variables to extract
- Manually adding sections of data to Data Pad
- Automating data extraction into Data Pad with “Multiple Add to Data Pad”
- Adding to Data Pad during experiments with “Timed Add to Data Pad”
- OLE linking to Excel spreadsheets

Export Data

- Saving, printing and exporting data in Data Pad
- Extract images to illustrate reports
- Using additional LabChart export Extensions

Improve LabChart Functionality

- Finding relevant LabChart Extensions and Modules in the Feature Manager
- Ensuring LabChart’s best available functionality with regular software updates