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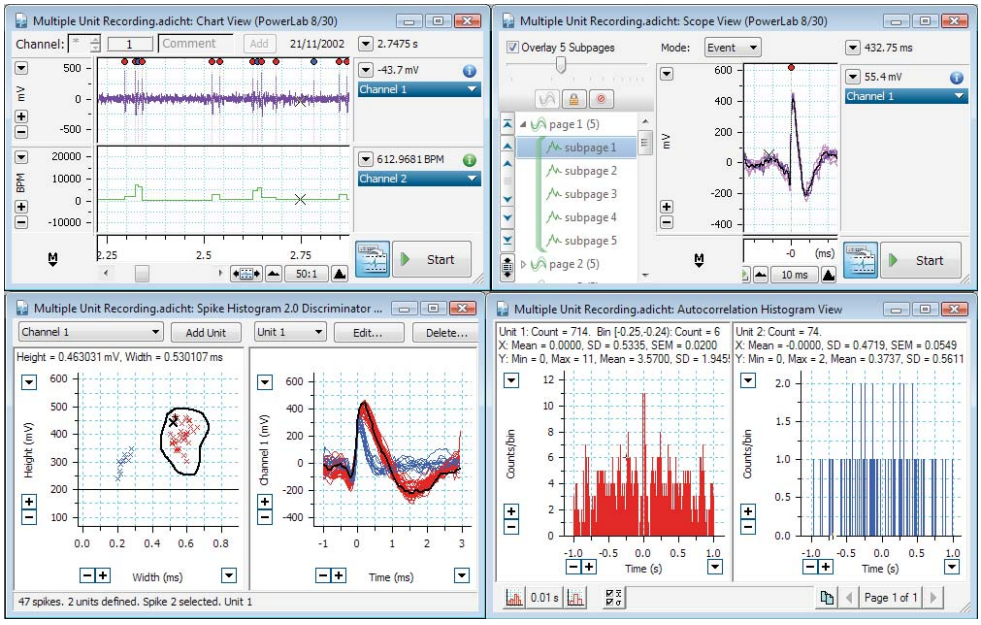
Extracellular Spike Analysis

Spike Histogram Module for LabChart® & PowerLab®



LabChart spike recording (top left) analysis using Spike Discriminator View (lower left) with individual spike units in Scope View (top right) and analysis using Autocorrelation Histogram (lower right).

The MLS062/7 Spike Histogram Module provides the ability to record and analyze extracellular spike data in real time and offline. Discriminating and analyzing extracellular neural spike activity is straightforward with dual height/width discriminator and can be used in studies of sympathetic nerve activity, microneurography and extracellular recordings.

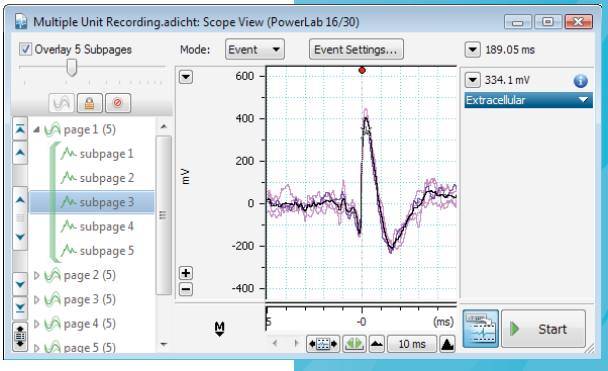
Powerful Spike Discrimination

The Discriminator View window (above, lower left) features two powerful discrimination methods:

- Template Units matches waveforms in the Spike Display pane using the root mean square (RMS) deviation and fit tolerance. Users can define different fit tolerance for multiple template units.
- Contour units are groups of spikes that are hand selected within the Scatter Plot pane. To hand select the spikes, the user can freehand draw any shape around spikes of interest.

Spike Averaging in Scope View

Spike units defined in the Discriminator View window can be used as an Event Source in LabChart Scope View. Defined spike shapes are displayed in real time and can be individually viewed. Spike triggered averaging can be performed using time-based occurrence of spikes.



Spike units defined in Spike Histogram Discriminator Window can be used as an Event Source in LabChart Scope View.

Features & Benefits

- Powerful spike discrimination using:
  - template matching
  - free-hand contour unit drawing
- Multi-channel analysis allowing comparison of physiologic measures
- Seamless integration with Scope View
- Six specialized histogram windows available in real time:
  - Rate Meter
  - Amplitude
  - Interspike Interval
  - Peristimulus Time
  - Autocorrelation
  - Cross-correlation
- Spike data recorded in LabChart can be easily exported into NeuroExplorer® for further analysis

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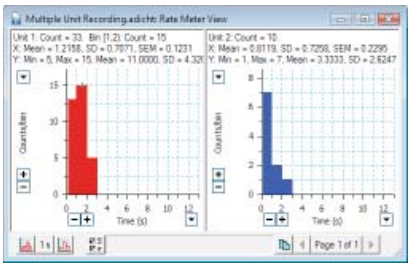
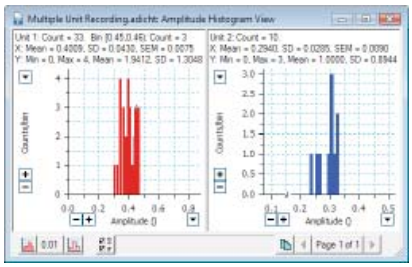
Spike Histogram Module

Specialized Histogram Windows

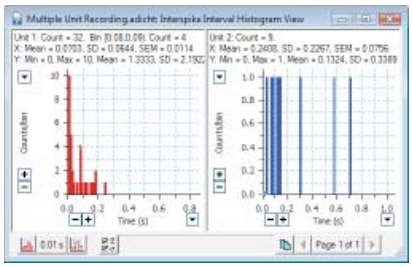
Powerful analysis of discriminated spike units can be performed using six specialized histogram windows. Histogram windows are available in real time and offline and include Rate Meter, Amplitude, Interspike Interval, Peristimulus Time, Autocorrelation and Cross-correlation.



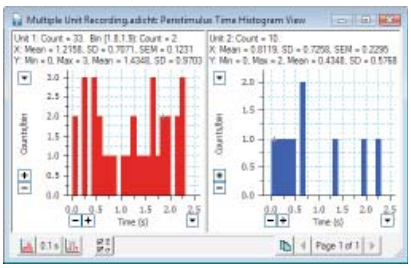
Ratemeter plots the firing rate against time.



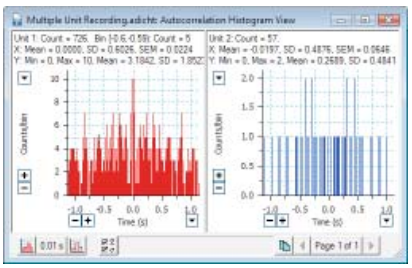
Amplitude displays a histogram of amplitudes.



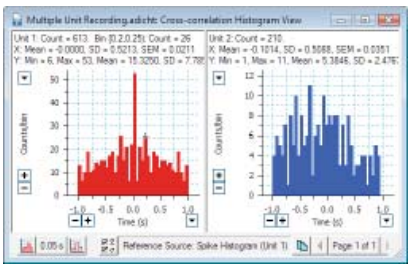
Interspike Interval displays a histogram of interval distribution.



Peristimulus Time displays the frequency and timing of spikes relative to a stimulus or event.



Autocorrelation detects periodicity in an individual unit.

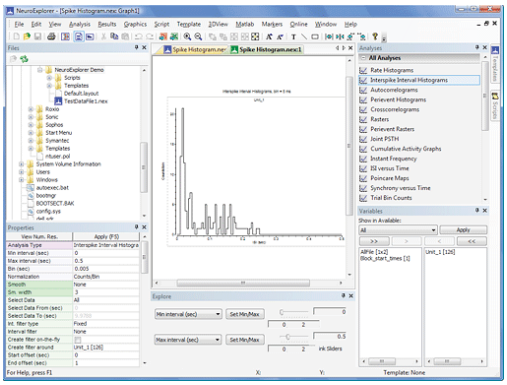


Cross-correlation detects the temporal dependence of two physiologic parameters.

Additional Data Exporting Options

Spike Histogram calculates and places thirteen parameters for each Histogram Window into the LabChart Data Pad for OLE with other applications such as Microsoft Excel. Parameters include bin size, mean X, SD X, SEM X, mean Y and more.

Spike Histogram for Windows has the additional feature of exporting LabChart data in .nex format. With this you can easily transfer your data into NeuroExplorer software for extensive spike train analysis options including Poincare plots, burst and spectral analysis, and more.



Export LabChart data into NeuroExplorer easily.

Spike Histogram Module is available for both Windows and Macintosh platforms.

*Together with PowerLab and LabChart, the GLP Client and GLP Server facilitate GLP and 21 CFR Part 11 compliance.

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