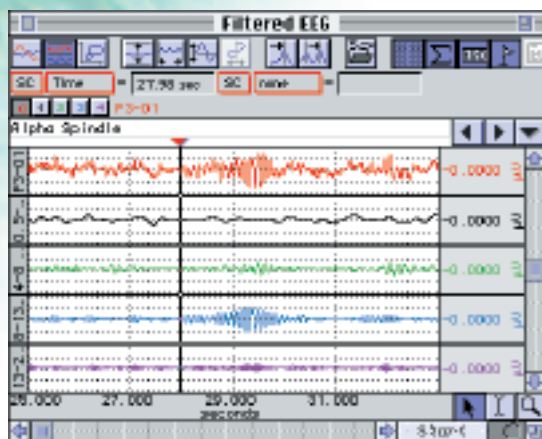




Record up to 16 leads and use the on-line software features to derive new leads or filter raw data for a wide range of EEG applications on human and animal subjects. For example, set up multiple-lead unipolar or bipolar montages, or emphasize changes in occipital lobe alpha activity as a consequence of experimental procedure. A variety of stimulus/response protocols are possible when using the averaging options and stimulator accessories.

FEATURES

- REAL-TIME EEG FILTERING
- SPECTRAL ANALYSIS
- AMPLITUDE HISTOGRAM
- SPIKE COUNTING
- EPISODE COUNTING
- EVOKED RESPONSES
- EVENT-RELATED POTENTIALS
- DIVIDING EEG INTO SPECIFIC EPOCHS
- CROSS- AND AUTO-CORRELATION



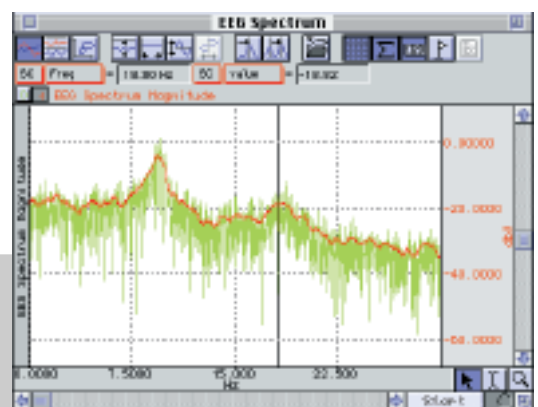
REAL-TIME EEG FILTERING Q01

Record single- or multi-channel montages with on-line calculation channels for Delta, Theta, Alpha, and Beta wave activity. On-line calculation channels allow the display of raw and filtered data in real time, and users can employ a variety of other transformations to filter the data off-line and further analyze the data.

- Maximum
- Minimum
- Frequency

SPECTRAL ANALYSIS

Use *AcqKnowledge* to obtain the power spectrum of the EEG. The power spectrum indicates the power of each frequency component present in the source time domain waveform. Perform power spectral analysis on EEG data from different leads and overlap the results. The FFT in *AcqKnowledge* allows frequency representation using linear or logarithmic scaling.

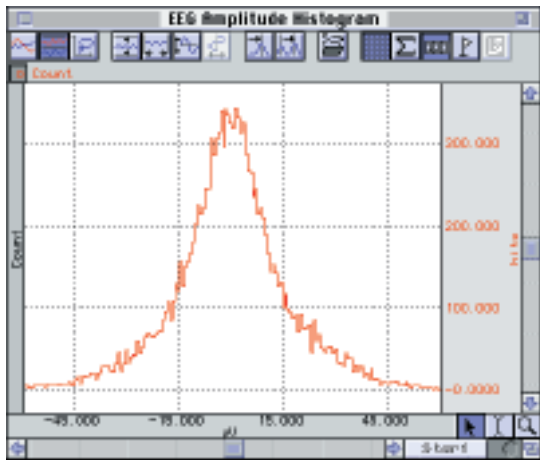


AMPLITUDE HISTOGRAM

Create an amplitude histogram to highlight changes within the EEG recording. Use this powerful feature to compare baselines on pre- and post-protocol data. View

EVOKED RESPONSES Q02

Record and analyze auditory, visual and somatosensory evoked responses. The on-line averaging function allows the user to perform detailed evoked response studies. The system can trigger a stimulator at the start of each averaging sweep, or an external stimulator can trigger the start of a new sweep. Set the length of the averaging sweep, the number of averages and the latency between averaging passes. Remove any stimulus artifact with the artifact rejection utility. Use the averaging software for a range of evoked potential studies on humans and animals, such as visual (VER), somatosensory (SER) and auditory (AER) responses.



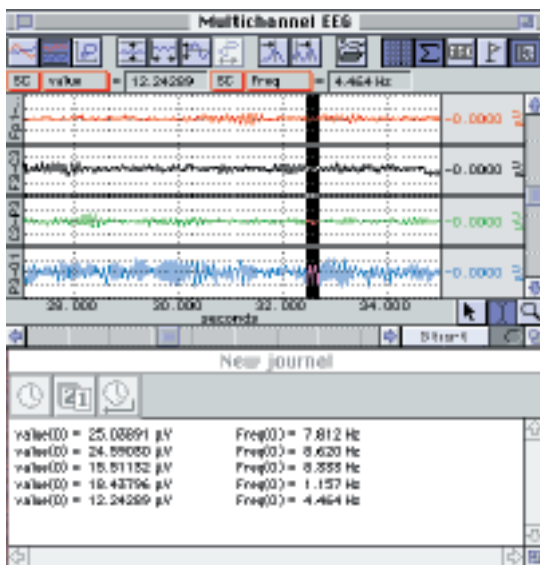
multiple histograms within the same graph window for easy visual comparisons of skewness and kurtosis. The degree of deviation from Gaussian distribution of the EEG has been shown to depend on the behavioral state of the subject. The software will automatically set the amplitude range based on the selected area of data, or the user can manually enter a range and adjust the number of bins to maximize the display resolution.

SPIKE COUNTING

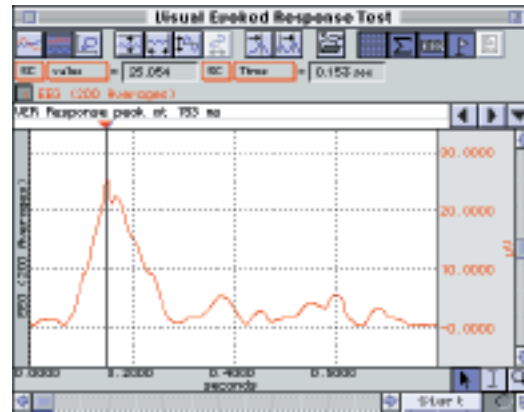
The Peak detection function will isolate individual EEG spikes, measure and count them, and enter the result into the Journal file. Select the measurements desired and the software will do the rest. Perform the analysis over the entire recording, pre-selected regions, or a pre-defined time period (e.g., every 30 seconds). Automation features allow the user to select data specific to experimental protocols, such as day/night cycles.

EPISODE COUNTING

To determine the number of episodes (sleep spindles, k complexes, epileptic spikes) within a given time period, integrate appropriately filtered EEG data. Next, use the Peak detection function to locate each episode, count



episodes, analyze the time duration of each episode, and determine the frequency of occurrence. This feature is useful for studying episodic activity in humans and small animals over long time durations, including day/night cycles.



EVENT-RELATED POTENTIALS Q03

The STP100W package will present a variety of visual and auditory stimuli on one computer while the AcqKnowledge software records the responses on another computer. As the stimuli are presented, the STP100W simultaneously (with 1ms resolution) sends trigger signals to the MP System for data synchronization and collection. The STP100W software (SuperLab™ Pro) can be used to change the placement of visual stimuli on the screen, change the screen's background color, choose from a variety of input and timing options, and provide feedback based on either response or reaction time. Different trigger channels can be paired to different visual or auditory stimuli to perform sophisticated evoked response averaging tests (e.g., P300). The off-line averaging function in AcqKnowledge displays the averaged response to each different stimulus triggered from the STP100W system.

DIVIDING EEG INTO SPECIFIC EPOCHS

Use the display scrolling controls to adjust the rate at which data is scrolled across the screen. For example, set the horizontal axis to sweep exactly 30 seconds of data across the screen. This mode is very useful when scoring sleep studies in 30-second epochs.

CROSS- AND AUTO-CORRELATION

To correlate one channel of EEG data with another, use the off-line correlation function in AcqKnowledge. To obtain the auto-correlation of a signal, correlate a channel with itself. To obtain the power spectral density, perform the FFT on the auto-correlation result.

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