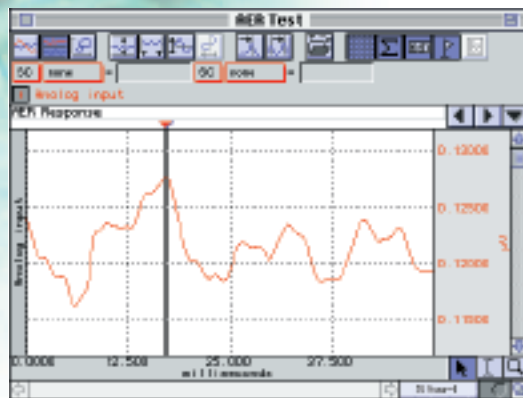




Perform a wide variety of evoked response studies with the powerful on- and off-line averaging features of the MP System. Record and measure evoked potentials, late potentials, startle, nerve conduction and field potentials. Use 100C-series biopotential amplifiers to record visual, somatosensory and auditory evoked responses—the averaging features make it possible to detect signals below the level of ambient noise. Use the stimulator to output pre-defined waveforms, tones, tone pips, clicks (pulses) or other more complex waveforms. Calculate nerve conduction velocity and recovery time; investigate properties of muscle action potentials and fast nerve impulses. Record and analyze extra-cellular spikes.

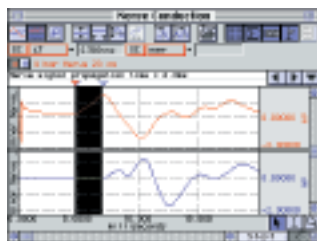
FEATURES

- NERVE CONDUCTION STUDIES
- SIGNAL AVERAGING
- SOFTWARE-CONTROLLED STIMULATOR
- AUDITORY EVOKED RESPONSE (AER) & JEWETT SEQUENCE
- VISUAL EVOKED RESPONSE (VER)
- SOMATOSENSORY EVOKED RESPONSE (SER)
- EVENT RELATED POTENTIALS (ERP)
- EXTRA-CELLULAR SPIKE RECORDING
- AUTOMATICALLY CONTROL EXTERNAL EQUIPMENT



NERVE CONDUCTION STUDIES Q04

The system software permits easy determination of peak times and maximum responses. Stimulate and record signals from nerves *in-vivo* or *in-vitro*; using the built-in software averaging mode, it's possible to record signals from *in-vivo* nerves using skin surface electrodes only. Evaluate the effects of stimulation to motor nerve endings in terms of electrical or mechanical response. Configure stimulation sources to provide electrical, mechanical or visual stimulation, and vary the duration and level of stimulus. In



addition to the stimulator, up to 16 amplifiers can be simultaneously employed to record nerve and/or muscle responses.

SIGNAL AVERAGING

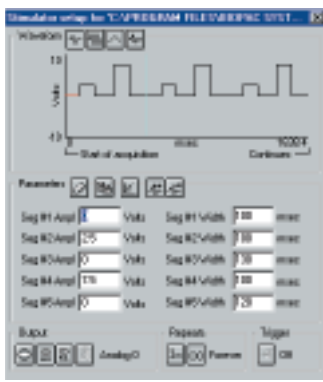
Remove background noise and extract the signal of interest with the on-line signal-averaging mode. Set the sweep duration and the number of averaging trials. Specify artifact rejection criteria, and determine the triggering options. The software will calculate the average and display the result in real time. The software counts and displays the total number of averages, the number of averages left to complete the sequence, and the number rejected from the test.

SOFTWARE-CONTROLLED STIMULATOR

Use the graphical setup features in the AcqKnowledge Stimulator dialog to design the appropriate stimulus. The stimulator setup provides a variety of pre-formatted

- Action Potential Recording
- Compound Potentials
- Absolute and Relative Refractory Periods
- Inhibitory and Excitatory Stimulus
- Nerve Conduction Velocity
- Signal Averaging (Somatosensory, Auditory or Visual Evoked Response)
- Twitch, Sub-Threshold/Threshold
- Maximum Contractile Response
- Tetanic Tension
- Post-Tetanic Potentiation
- Summation
- Fatigue
- Isometric vs. Isotonic Contraction

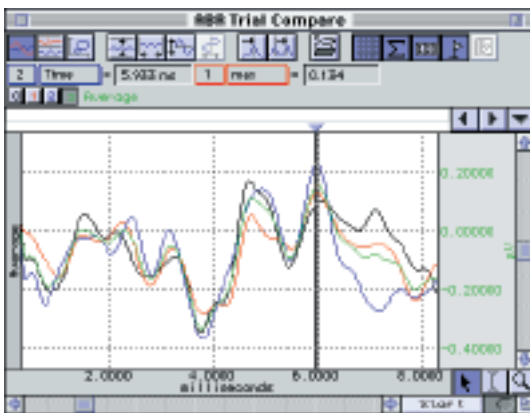
output options including square, sine and triangle waves. It's also possible to create stimulus waveforms of any polarity and shape. The output options are adjusted either graphically or numerically for easy control of amplitude, duration and start time.



Users can also output a previously recorded waveform or create customized stimuli using the waveform math tools.

AUDITORY EVOKED RESPONSE (AER) & JEWETT SEQUENCE Q05

To perform on-line AER studies, combine the auditory output options of the STM100C Stimulator with the signal averaging functions of the MP System. Use the OUT101 Tubephone to efficiently direct acoustical stimuli. The software will display the results and allow users to measure the amplitude and time of Fast (2-12 msec), Middle (12-50 msec), Slow (50-300 msec), and Late responses (250-600 msec).



VISUAL EVOKED RESPONSE Q06

Perform VER studies with the TSD122 Stroboscope and the averaging features of the MP System. Trigger the averaging cycle with the stroboscope, or vice-versa. Users can substitute different visual stimulators (e.g. checkerboard generators) for the stroboscope.

SOMATOSENSORY EVOKED RESPONSE Q07

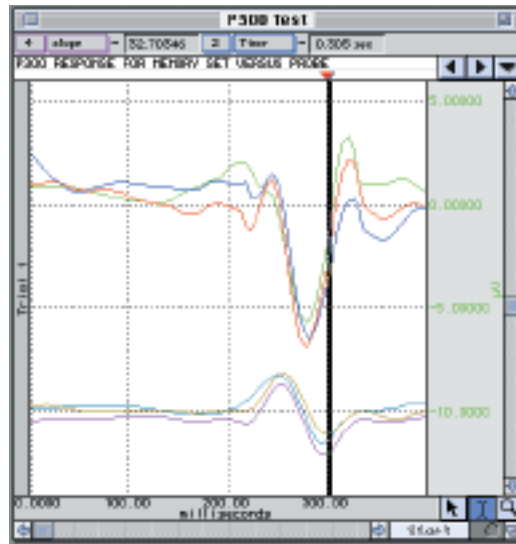
Perform somatosensory tests by using the MP System with a STM100C stimulator and either the STMISO series or a solenoid.

- 1) The STMISO series, used with the STM100C, will provide either voltage or current stimulation.
- 2) A solenoid will provide a mechanical stimulation to provoke a touch sensation in the subject synchronously with neuronal recording. Drive a solenoid directly from the STM100C stimulator and use the ERS100C amplifier to record the evoked potentials.

Average the potentials to obtain a clear picture of the response amplitude and latency.

EVENT-RELATED POTENTIALS (STP100W) 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™) 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.

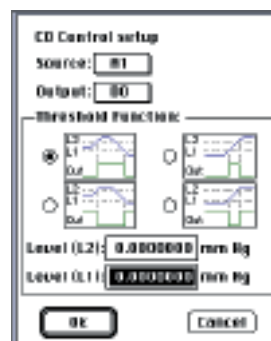


EXTRA-CELLULAR SPIKE RECORDING Q09

Record and analyze extra-cellular spikes using a glass or wire micro-electrode and the MCE100C micro-electrode amplifier. Use the averaging function in AcqKnowledge to determine the average response, or count the number of spikes with the peak detection function. To identify trends within the firings, use the Histogram and FFT analysis functions. Measure the amplitude, duration, and frequency of each spike.

AUTOMATICALLY CONTROL EXTERNAL EQUIPMENT

Use the digital I/O lines on the MP System to drive multiple stimulating devices—control lights, buzzers, relays and solenoids. Drive solid state relays directly from the I/O lines to control high-powered external devices. Use the on-line Calculation channels to create synchronization and control channel outputs.



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