



Revolutionizing
Behavior Research



SonoScan

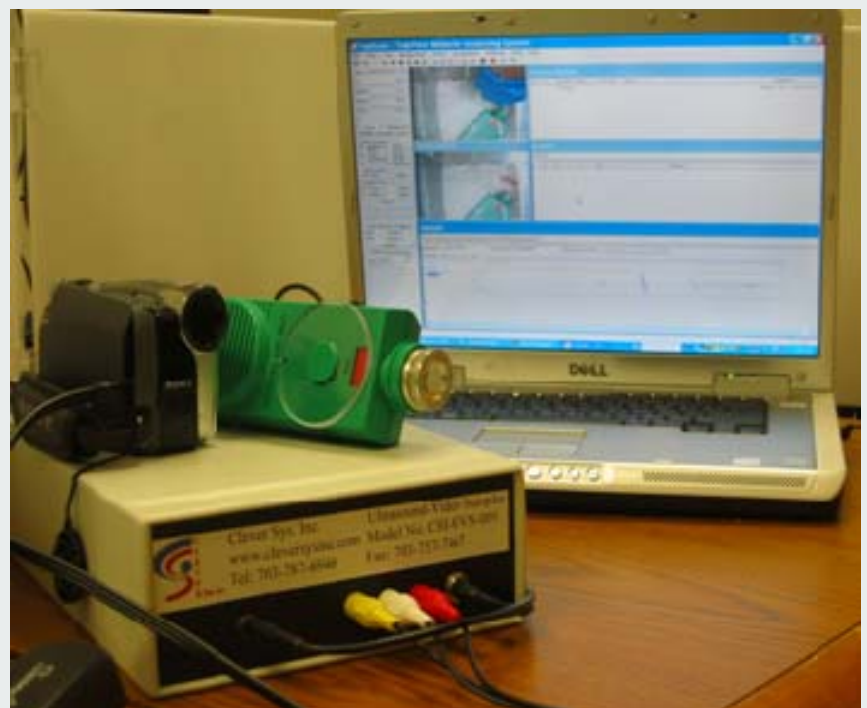
Features:

- Records ultrasonic signals in real time
- Analyzes ultrasonic signals in real time or offline
- Detects ultrasonic spikes, such as chirps in pup communications
- Works with any bat detector including mini-3 bat detector or U30 bat detector
- Works with high end B&K microphone system
- Synchronizes with any Clever Sys video behavior recording and analysis system!
- Continuous 24-hour or greater recording capable
- Easy plug-n-play functionality
- Full spectrum recording and analysis
- Result review, Visualization of Acquired Experiment
- Export results to Excel
- Graphical presentation of results

SonoScan is a special product designed for ultrasonic applications in relation to lab animal phenotyping. Recent years have seen an increasing interest in detecting ultrasonic communications by lab animals. These ultrasonic communications are of particular significance in lab animals having social interactions such as by newborn pups or between two animals. SonoScan meets this increasing demand by providing many outstanding features.

SonoScan can record and analyze any ultrasonic signal, especially those generated by pups or lab animals while in social encounters. Following shows the system configuration, including both hardware and software. The system can record ultrasonic signals through ultrasonic acquisition hardware, digitize it and record it in real time. A software component can further analyze ultrasonic signals either in *real time* or in *offline* operation to detect ultrasonic spikes or chirps, as in pup communications.

Another unique feature of SonoScan is that it can take all kinds of ultrasonic signal acquisition hardware, including lower end products such as a bat detector as well as high end products like the B&K microphone system. SonoScan can work with not only the mini-3 bat detector, but also the U30 bat detector. Further more, the recording and analysis of ultrasonic can be synchronized with behavior analysis recording and analysis with any of our PhenoScan behavior phenotyping series products.



Capabilities of SonoScan include:

- Record Ultrasonic signals
- Display the signal plot
- Detect spikes in the ultrasonic signals
- Synchronize ultrasonic signals with video recording
- When combined with any of our Video Analysis software, can show what the ultrasonic signals look like during certain video analysis events

Clever Sys Inc.

Behavior Recognition
Innovation makes the difference



SonoScan

(Continued from front)

Applications:

- Social Interaction Tests
- Maternal Behavior Tests
- Resident Intruder Tests
- Social Preference Tests
- And many more!

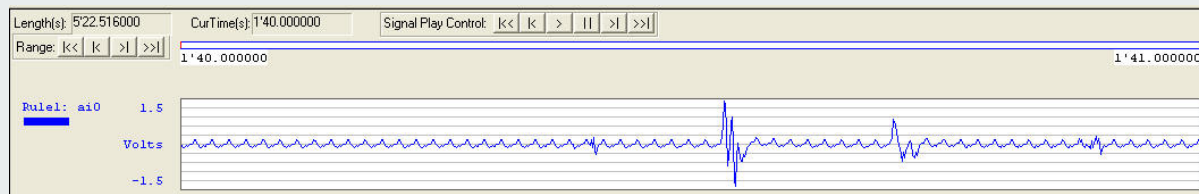
Results:

- Ultrasonic signal recordings
- Ultrasonic signal Spike Detection
- Automatic Export to Excel
- Complete Experiment Database Management

Requirements:

- Windows-based PC
- Intel High-speed Processor
- Special Videocard for realtime video recording/analysis
- Compatible Bat Detector
- Data Acquisition Card
- Large HDD space for storage
- Good lighting conditions
- IR-switchable camera or red-light for night
- Video-multiplexer for multi-camera feed

The figure below shows a video of a bat detector placed close to a pup to record its vocalizations. Beneath this pictures is a SonoScan display showing the small segment of the ultrasonic vocalization signal plot. Notice the several spikes in the signal.



A data acquisition card along with a compatible bat detector is required for the SonoScan software. To perform video recordings simultaneously, a special video card is require. The full hardware and software solution for ultrasonic signal and video recording is called the **SonoPhenoStation** (a picture of a portable SonoPhenoStation is shown on the front side).

Unique Capabilities:

- Complete Hardware and Software Solution
- Records Ultrasonic Signals
- Works with multiple ultrasonic recording devices
- Signal sampling rates up to 256 KHz is possible
- Synchronizable with any of Clever Sys video recording software.