# Sound Analysis

The sound files created by **Avisoft-RECORDER** can be easily analyzed in the **Avisoft-SASLab Pro** sound analysis software. Time-expanded bat calls can also be acquired through a standard sound card using the integrated real-time recording spectrograph. This software allows rapid analysis and supports a wide range of analysis (and synthesis) options. It is probably the most powerful software tool that is currently available for bioacoustic research. Many features are specifically designed for bat sound analysis (zero-crossing analysis, instantaneous frequency and compressing of long call sequences).

Various cursors support quick measurements. A powerful automatic parameter measurement option can further accelerate investigations. Among the parameters that can be measured automatically are call duration, dominant frequency, start and end frequencies. The software can also be configured for subsequent automated call classification. Additionally, various statistics can be derived from these parameters.

Spectrograms and waveforms can be printed at high quality. For printing long call sequences at high resolution, the printout can be spread over several rows and pages.

Avisoft-SASLab Pro is the best choice for researchers interested in advanced sound analysis and synthesis.
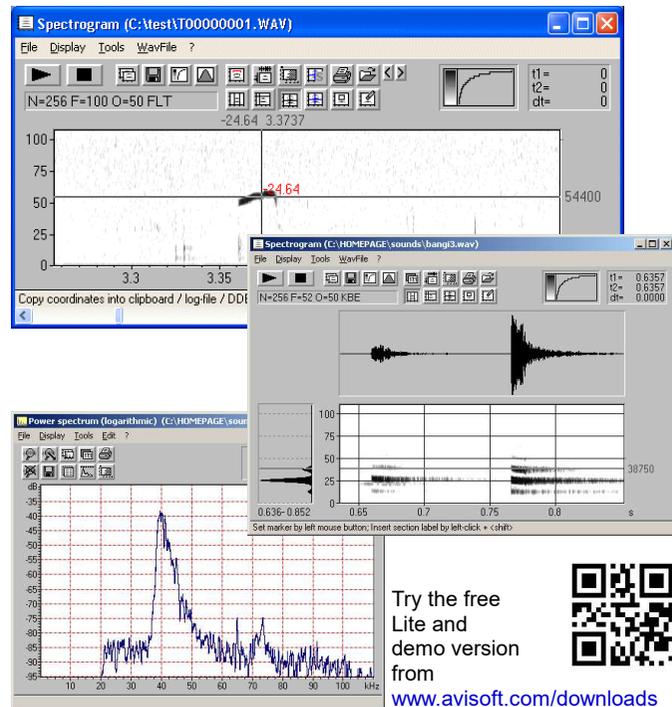
Try the free Lite and demo version from
www.avisoft.com/downloads

What are the advantages of the UltraSoundGate system over other bat detectors?

The 16 bit A/D conversion with integrated adaptive AAF filter and the newly designed high-quality microphones enable high-quality recordings with superior signal-to-noise ratios and low distortion.

The integrated peak level meter (consisting of 5 LED's) helps adjusting the recording level appropriately (for preventing both overload and too soft recordings).

Unlimited continuous recording time (the only limitation is the size of the computer harddisk).

Real-time spectrogram display with optional automated call parameter measurements and classification.

A TTL-compatible digital input allows to synchronize the sound recordings with other signals (e.g. video).

Due to the sturdy construction of all its components, the UltraSoundGate system will work reliably even under rough field conditions.

The accomanying RECORDER USGH software can simultaneously acquire weather and GPS data from third-party devices. The collected coordinates, which are saved into common .gpx or .kml log files, can be imported easily into GIS applications such as Google Earth.

A versatile XML-based metadata input tool providing user-defined database fields with optional validation capabilities allows to enter the documentation already in the field. This metadata information is stored directly into the .wav files (into a custom dXML RIFF chunk), which means that it is tightly connected to the original recordings.
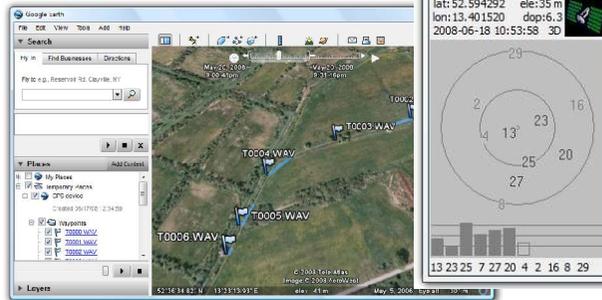
Avisoft Bioacoustics e.K.
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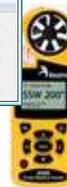16548 Glienicke/Nordbahn
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Avisoft Bioacoustics UltraSoundGate

PC-based ultrasound recording and playback systems for applications both in the lab and in the field

Its modular concept allows to optimize the system for a wide range of different applications

TTL-compatible digital input

The trigger button allows to control the Avisoft-RECORDER software remotely

The electret condenser microphone is very compact and rugged (better reliability in humid environments).

The rugged and compact unit is made of high-quality components. It's aluminium housing provides maximum reliability in the field.

A rugged input connector allows to attach various microphones or other signal sources

The optional Polaroid transducer capsule provides maximum sensitivity around 50kHz.

Direct sampling at up to 1 MHz at 16 bit resolution enables superior sound quality.

Very sensitive externally polarized solid-dielectric condenser microphone with a flat frequency response between 15 and 200 kHz.

Charge amplifier with adjustable high-pass filter for connecting passive hydrophones

Rugged USB interface for streaming the digitized ultrasounds into a laptop PC (bus-powered operation)

UltraSoundGate 116Hm for hand-held use in the field

Power module and low-noise preamplifier for directly connecting 1/4" or 1/8" measurement microphones

Acoustic monitor (bat detector functionality)

Gain control knob with a wide 40dB control range

A peak level and overload indicator helps adjusting the gain appropriately.

Electrostatic speaker

Small-sized tablet PCs can be mounted directly on the USG 116Hm, which creates a compact and light-weight bat recorder with integrated GPS and weather data logging functionality.

Dynamic speaker

UltraSoundGate Player 116
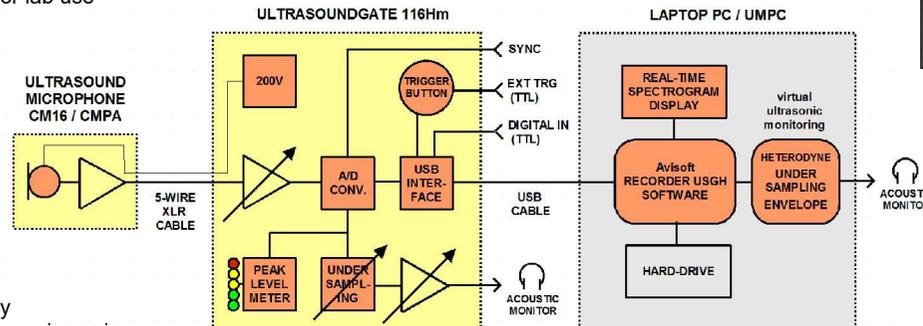
UltraSoundGate 116H for lab use

USG 416H (4 channels)

System requirements

IBM-compatible PC, 900 MHz or more with at least one USB 2.0 port, running Windows Vista, 7, 8 or 10

The UltraSoundGate system has been developed by Avisoft Bioacoustics having more than 24 years of experience in designing animal sound analysis software, digital signal processing systems and ultrasound recording / detecting equipment.

Block diagram labels

ULTRASOUNDGATE 116Hm

LAPTOP PC / UMPC

ULTRASOUND MICROPHONE CM16 / CMPA

200V

TRIGGER BUTTON

SYNC

EXT TRG (TTL)

DIGITAL IN (TTL)

A/D CONV.

USB INTER-FACE

5-WIRE XLR CABLE

USB CABLE

REAL-TIME SPECTROGRAM DISPLAY

virtual ultrasonic monitoring

Avisoft RECORDER USGH SOFTWARE

HETERODYNE UNDER SAMPLING ENVELOPE

ACOUSTIC MONITOR

HARD-DRIVE

PEAK LEVEL METER

UNDER SAMPL-ING

ACOUSTIC MONITOR

Powerful Recording Software

The accompanying Avisoft-RECORDER USGH software saves the incoming sounds onto the PC harddrive and provides a real-time spectrogram display, numerous triggering options including sound-activated and timer controlled modes. A GPS data acquisition option supports the geographic documentation of field surveys.

Recording ultrasound has never been easier!