



德国 Avisoft 公司动物声谱分析系统

UltraSounbGate 116Hb 51162 Avisoft Bioacoustics

声谱分析系统产品介绍:

1. 通道: 1;
2. ADC 类型: 集成的假信号过滤 delta-sigmm 架构;
3. 分辨率: 16 比特或 8 比特;
4. 采样率: 300, 250, 214, 187.5, 166.6, 150, 125, 100, 75, 62.5, 50;
5. 频率响应(-3dB, 外部输入无 MIC) 20 Hz 至 140kHz;
6. 声学监测输入: 是 (可调到 2 到 30 倍采样) 音量可调;
7. 过载指示器 (红色 LED): 是;
8. 峰值电平表 (4 个 LED): 否
9. 输入灵敏度 (最大值): $-43.2\text{dbv} = 41\text{dBU} = 6.9\text{mVrms}$;
10. 输入灵敏度 (最小值): $-3.2\text{dbv} = 1\text{dBU} = 0.69\text{Vrms}$;
11. 增益调整电位: 40 分贝连续范围;
12. 输入阻抗: 50 千欧姆;
13. 模拟输入连接器: x1-5 阴极插座;

德国 Avisoft 公司动物声谱系统分析软件

Slab pro;Avisoft Bioacoustics;10102 Avisoft Bioacoustics

声谱分析系统软件产品介绍:

- 1) 支持所有的常见声卡和 USB 音频接口
- 2) 打开已由固态/硬盘现场记录的 .wav 和 .bwf 文件

南京欧熙科贸有限公司

地址: 南京市玄武区四牌楼 61 号同创大厦 618 室, 邮编: 210018 Website: www.njox.com
电话: 025-86465277, 52613764 传真: 025-52613794 E-mail: 13913028277@163.com



- 3) 导入使用第三方导入使用第三方录音/处理工具 (.WAV. BWF. AIF. .SND. .AU. 各种二进制格式和. txt) 记录声音文件
- 4) 将图像和测量结果作为文件 (.wmf. .bmp. .tif. .txt. htm. .xml. .sql) 导出, 通过剪贴板或通过 DDE 直接导出到 Excel
- 5) 通过, txt,kml,gpx 或 shp 文件将地理参考现场调查数据、导出到 GIS 应用程序 (包括 Google 地图/Google 地球,ArcGIS 产品,Quantum GIS 和许多其他应用程序)
- 6) 该软件可以配置为触摸屏操作, 以方便其在平板电脑上使用。
- 7) 颜色编码须谱图 (FFT 大小为 64-1024 点), 使用 TrueType 字体输出高质量频谱图。
- 8) 有循环缓冲记录的实时频谱图显示;
- 9) 用于去除噪声的数字滤波;
- 10) 用于测量谱图结构的灵活光标;
- 11) 单点和时间段标签的标签选项;
- 12) 多功能自动声音参数测量和分类设施 (事件检测, 分析, 分类和统计);
- 13) 幅度和功率谱, 线性预测编码 (LPC), 自相关和互相关, 倒谱, 直方图, 2D 和 3D 散点图, 3D 瀑布显示, 脉冲密度直方图, 使用希尔伯特变换的包络和瞬时频率, 使用 FFT 技术的移频, 均方根, 用于声谱图比较的声音相似性矩阵;
- 14) 用于噪声水平测量的八度音阶和第三音级分析;
- 15) 超声回波 (全谱) 超声记录;
- 16) 用于生成人工歌曲和鼠交流声的合成器, 用于绘制参数演变 (基频, 包络, 谐波, 频率和幅度调制)。听鸟声合成。
- 17) 通过与模板的谱图互相关自动分类音节;

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Single-Channel Recording Systems

USG 116H : full-featured unit
sample rates of up to 1 MHz with external trigger inputs and spare microphone capsule
(order # 51163 / ...4)



USG 116Hb : basic and cost-effective solution
sample rates of up to 300 kHz, without external trigger inputs and without spare microphone capsule
(order # 51161 / ...2)



Special microphones for best results



The supplied sensitive externally polarized solid-dielectric condenser microphones exhibit a fairly flat frequency response from 15 to 200 kHz

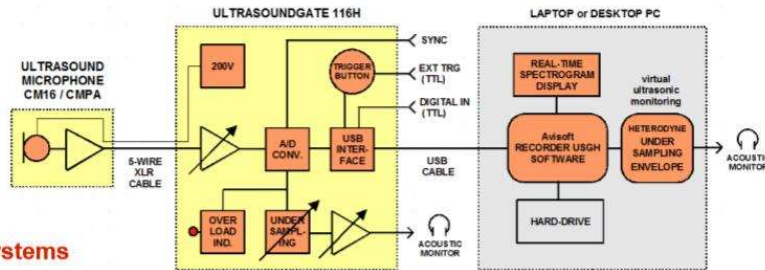
(order # 40011)



Alternative microphone models are available in order to suit special needs.

4-Channel Recording Systems

USG 416H : full-featured unit
sample rates of up to 750 kHz, 16 bit resolution for all 4 channels (order # 34163 / ...4)



Functional principle of the single-channel system

Playback

There is also a wide range of playback options available:

The bus-powered UltraSoundGate Player 116 includes a 16 bit D/A converter, a power amplifier and a bias voltage generator for operating electrostatic speakers
(order # 70111 / ...2)



The 2-channel device UltraSoundGate Player 216H (order # 70117 / ...8) can play two signals simultaneously.



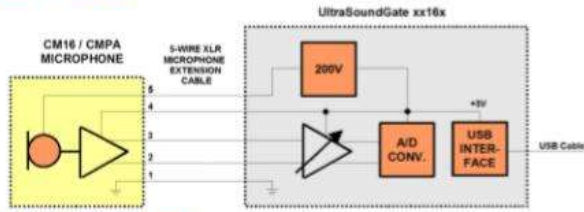
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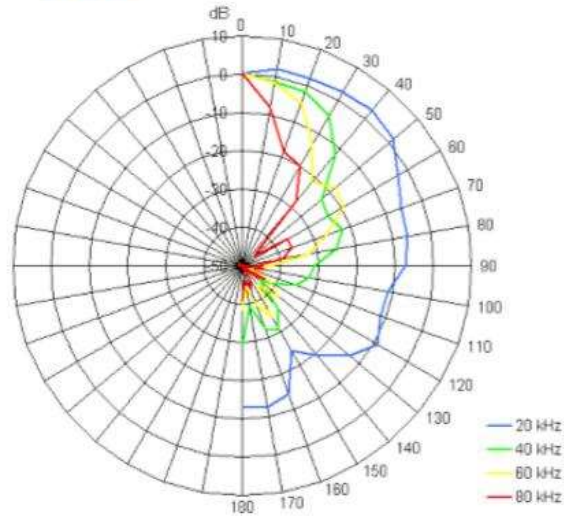
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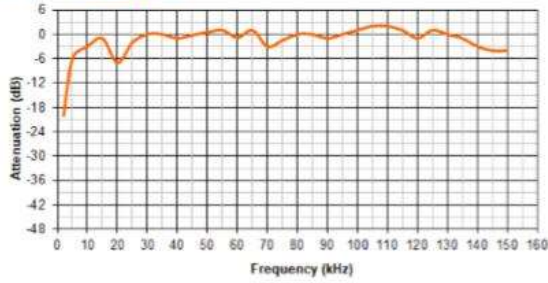
工作原理:



极化图:



频率响应特性:



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

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

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

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

Acoustic monitor (bat detector functionality)

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

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

TTL-compatible digital input

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

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

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

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

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

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

UltraSoundGate 116Hm for hand-held use in the field

Gain control knob with a wide 40dB control range

Electrostatic speaker

Dynamic 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.

UltraSoundGate Player 116

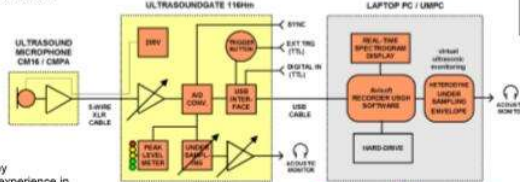
USG 416H (4 channels)

UltraSoundGate 116H for lab use

System requirements

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

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.



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.

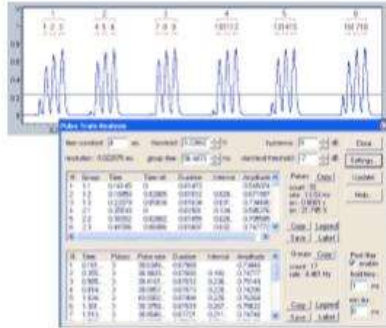
Recording ultrasound has never been easier!



WAVEFORM ANALYSIS

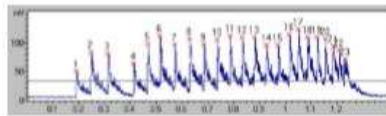
1. Waveform-based analysis of temporal patterns (pulse train analysis)

1.1 Separation by simple (absolute) amplitude threshold comparisons (gate function)

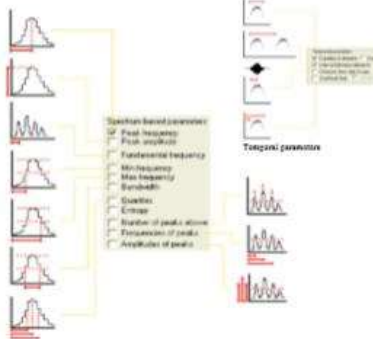


1.2 Separation by adaptive (relative) amplitude threshold comparisons

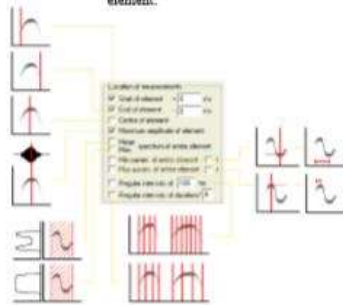
The advantage of this separation mode is its ability to detect both small and large peaks in situations where a fixed absolute (gate function) threshold would fail.



The element detection threshold can be adjusted interactively:



The above spectrum-based parameters can be taken from the spectrogram at various locations within each detected element.

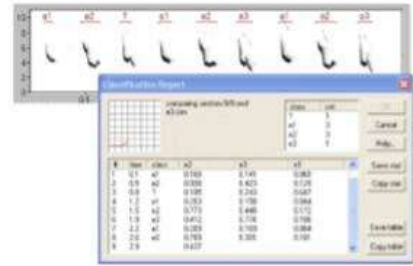


SYLLABLE CLASSIFICATION

The acquired time and frequency parameters can further be used to identify element types.



2.2 Template spectrogram comparison (using cross-correlation) for identifying and labeling certain spectrogram patterns either continuously over the entire sound file or limited to manually or automatically detected sound events



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