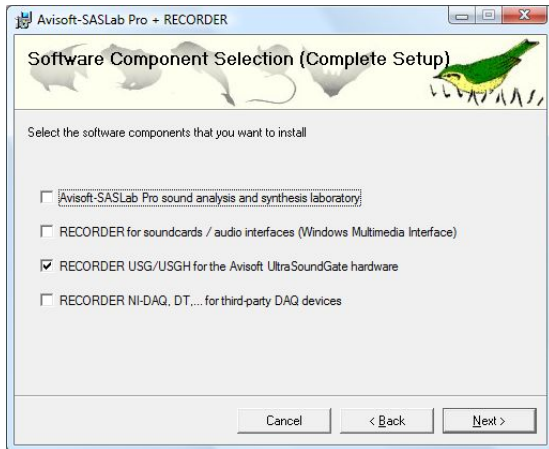


## Introduction

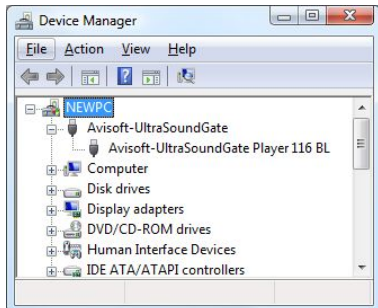
Thank you for purchasing Avisoft UltraSoundGate PlayerBL Light. This bus-powered USB device provides a 16 bit D/A converter, a power amplifier and one or two integrated speakers. The accompanying recording software Avisoft-RECORDER USGH can play common .wav files acquired by the Avisoft-UltraSoundGate ultrasound recording hardware or other third-party equipment, such as time-expansion bat detectors.

## Installation procedure

Install the RECORDER USGH software from the supplied software installation media before the unit is connected to the PC. The installation procedure will require administrator rights. Check the option "RECORDER USG/USGH for the Avisoft UltraSoundGate hardware" on the Software Component Selection panel:

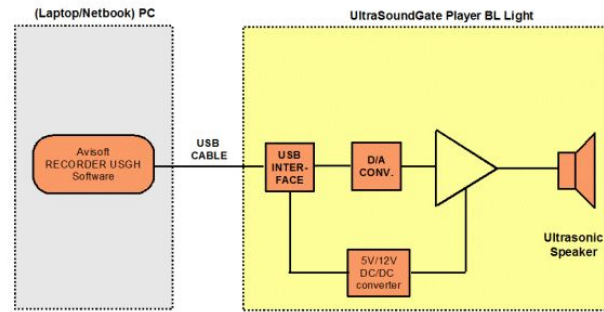


During the installation, the required device drivers (usgh\_xx16h.inf files and usgh.sys) for the UltraSoundGate XX16H devices will be pre-installed. When the installation procedure has completed, the UltraSoundGate unit can be connected to the computer. The device should then be detected as "Avisoft-UltraSoundGate Player BL" and the pre-installed driver should be finally activated. The amber PLAY LED (2) should be flashing.



Under some circumstances (on Windows XP) it might happen that the Windows Device Manager asks for the device driver file usgh.sys, which can be found in the folder

C:/Program Files/Avisoft Bioacoustics/Drivers.



Functional principle of the UltraSoundGate Player BL Light

## Cleaning up sound files for playback

Sound recordings made in the field often contain undesired noise or echoes that may reduce the effectiveness of the playbacks. Fortunately, depending on the quality of such recordings, it is often possible to remove the background noise floor either automatically ("noise reduction" command on various sound editing applications) or manually. In the Avisoft-SASLab Pro software, it is also possible to re-synthesize poor-quality recordings (spectrogram window command "Tools"/"Scan frequency contour") or even create fully synthetic (supernormal) vocalizations [main window command "Edit"/"Synthesizer"/"Synthesizer (graphically)"].

## Playing time-expanded recordings without file format conversion

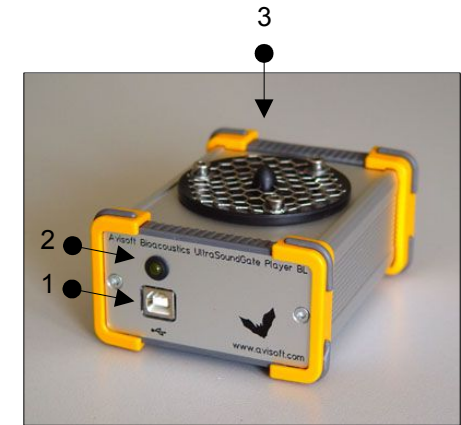
Time-expanded .wav files can also be played directly without converting them in advance. This mode of operation can be accomplished by checking the Output Device Settings option **real-time oversampling**.

Additionally, the **playback rate** option "**use other rate**" must be selected and the effective sample rate of the sound file (sample rate x time expansion factor) should be entered (for instance 44.1 kHz x 10 = 410000 Hz).

The list box titled **number of taps (accuracy)** will determine the accuracy of the conversion. Higher values will increase the accuracy but will also increase the CPU usage. Slower PC's may be unable to process the data in real-time (which can be recognized by a distorted playback and the inability of the RECORDER software to respond to user inputs during the playback). Under these circumstances, it is therefore recommended to resample the sound files in advance by in Avisoft-SASLab Pro.

The real-time oversampling mode also allows to directly play time-expanded recordings at their correct (original) speed. Select the playback rate option ""

## Components of the USG Player BL Light



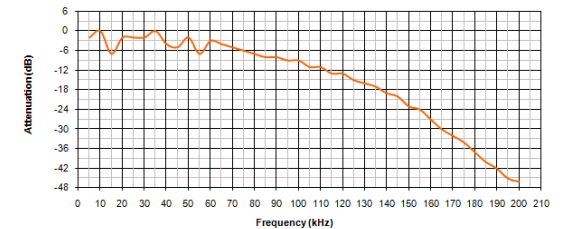
### 1 USB 1.1 interface

Plug in here the supplied USB cable to connect the unit with the computer.

### 2 PLAY LED

This amber LED indicates the playback of a .wav file (permanent light). The LED flashes when currently no file is being played.

### 3 Speaker

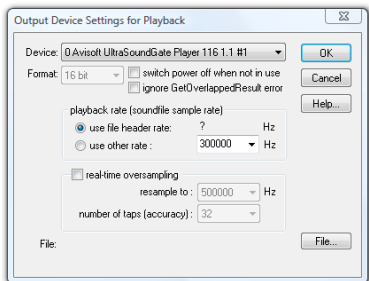


Frequency response of the inbuilt speaker

## Getting started

After installing the Avisoft-RECORDER USGH Software and connecting the UltraSoundGate Player BL to the computer, the RECORDER USGH software can be launched from the Windows Start menu **All Programs / Avisoft Bioacoustics / RECORDER USGH** or directly from the corresponding icon on the desktop.

The playback functionality of the RECORDER software is located on the **Play** menu.



First go to the command **Play/Device...** and select the Avisoft UltraSoundGate Player BL from the **Device** listbox at the top of the dialog box (this dialog box will be launched automatically on the first start of the software). Normally, the default **playback rate** option "**from file header**" should be selected. In this case, the playback sample rate will be taken from the file header of the .wav file, which will ensure that the file is being played at the correct speed. Note that the USG Player only supports a limited number of sample rates (500, 384, 375, 300, 250 kHz, ...). If the original .wav file to be played has a different sample rate (for instance 44.1 kHz), it is necessary to resample it to one of these sample rates. This can be done for instance in Avisoft-SASLab Pro from the command "Edit"/"Format"/"Sampling Frequency Conversion..."

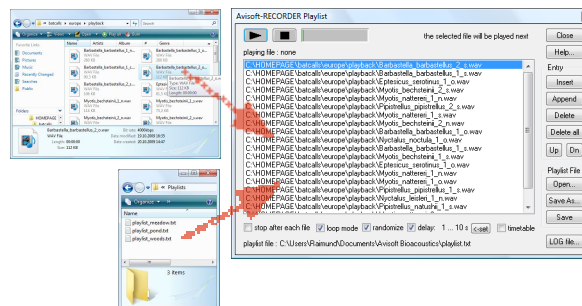
If the original file has been recorded by using a time-expansion bat detector onto a common audio recorder, the time expansion factor must be taken into account. For instance, if the time expansion factor of the bat detector is 10:1 and the sample rate of the sound file is 44.1 kHz, the effective (original) sample rate of the sound file would be  $10 \times 44.1 \text{ kHz} = 441 \text{ kHz}$ . In SASLab Pro/Lite, both the time-expansion compensation and the required resampling can be done from the command "Edit"/"Format"/"Restore the original time scale of a time-expanded recording...". The option "Perform subsequent Sample Rate Conversion" must there be activated and one of the sample rates that are supported by the USG Player BL, such as 500, 375, 300 or 250 kHz should be selected from the list box **to**:

Alternatively, the sample rate can be converted by the RECORDER USGH software in real-time. This mode of operation can be activated by checking the option **real-time oversampling**. The list box titled **number of taps (accuracy)** will determine the accuracy of the conversion. Higher values will increase the accuracy but will also increase the CPU usage. Slower PC's may be unable to process the data in real-time (which can be recognized by a distorted playback and the inability of the RECORDER software to respond to user inputs during the playback). Under these circumstances, it is therefore recommended to resample the sound files in advance with the Avisoft-SASLab Pro software.

There are various different ways for playing .wav files through the USG Player BL:

- Select the desired file from the command "**Play**"/"**File...**" and then play it from the command "**Play**"/"**Start**" (Shift+Spacebar) ▶
- Locate the desired .wav file on a Windows folder and drag it into the RECORDER USGH window. The playback will then start immediately.
- Prepare a list of files from the command "**Play**"/"**Playlist...**" and then play the selected files according to the settings made there.

The most convenient way is probably to use the playlist functionality. The desired .wav files can be added to the playlist simply by drag&drop from a Windows folder. The current playlist file can also be selected by drag&drop.



The playlist option **loop mode** will continue to play the contents of the playlist until the stop button is pressed. The option **randomize** will play the files in random order. Use the option **delay** to insert a user-defined delay between consecutive files. The desired delay can be defined from the **<-set** button, where the option **random delay** allows to enter a range for the delays.

The completed playlist must be subsequently saved by using either the "**Save As...**" or "**Save**" buttons if you wish to use it again at a later time.

In order to simplify the playback procedure in the field, the software can be configured to initiate the playback of the sound files in the playlist immediately after booting the computer. To enable this mode of operation, the option "**Play**"/"**Autostart**" must be activated and a link to the RECORDER USGH software (C:/Program Files/Avisoft Bioacoustics/rec\_usgh.exe) needs to be added to the Windows Startup folder.

The sound files that are defined in the currently selected playlist can also be played individually by pressing certain keys on the keyboard. The key for each file can be defined from the command "Options"/"Keyboard shortcuts and popup menu..."

Further details on how to use the RECORDER software can be found in its manual, which is located in the Avisoft Bioacoustics program folder (subfolder "Manuals")



USG Player BL Light

User's Guide

Avisoft ULTRASOUNDGATE



## Luring Bats into Mist Nets

A collection of European bat calls that are suited for luring bats is available on the supplied software installation media in the Batcalls folder. Alternatively, these .wav files can be downloaded from [www.batcalls.com](http://www.batcalls.com).

In order to prevent habituation, the calls should not be played continuously. Use the **randomize** and **delay** options of the Playlist command to create breaks between the individual files. A large repertoire of different bat calls should also prevent habituation. Fortunately, there is virtually no limitation in the number of sound files that can be played from the Playlist command.

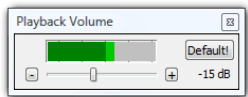
The RECORDER software command **Options/Configuration management/Presets/Bat Call Playback** creates a playlist of the bat call files that are currently present in the folder **Documents/Avisoft Bioacoustics/Batcalls** and adjusts the settings of the playlist command for the special needs of this application.

The battery life of a computer with a conventional HDD can be extended if the .wav files to be played are located on a SD card or USB stick and the option **Play/Settings.../create playback log file** is disabled. This will allow Windows to switch off the hard drive.

## Adjusting the Playback Level

The USG Player BL Light comes with a fixed gain that is adjusted in such a way that a full-scale signal in the .wav file just does not cause clipping in the power amplifier..

Though, the playback level can still be modified from the RECORDER USGH command **Play/Playback Volume...** Note that this adjustment option applies a digital attenuation or gain to the samples before they are transferred to the USG Player. For this reason, increasing the digital gain can cause digital clipping if the samples in the .wav file are already close to the full-scale level (0 dBFS).



## CAUTION!

Note that playing back (ultra) sounds in the field for attracting wild animals usually requires an official license or permit issued by the local nature conservation authorities!

Playing back bat calls extensively over long periods of time at one location may seriously disturb the local bat community.

Due to the potentially extremely high sound levels (>120 dB) at close distances, keep away from the speaker or wear a hearing protector during playback!

## Specifications

Number of channels	1
Resolution	8 or 16 bit
Sample rates [kHz]	1000 (8 bit only), 750 (8 bit only), 500, 384, 375, 300, 250, 214, 192, 187.5, 166.6, 150, 125, 100
Output power	1.5 W
Max sound pressure level bus-powered:	100dB @ 10cm (80dB @ 1m)
Frequency range	1 ... 125 kHz
Slew rate	8 V/ $\mu$ sec
Overload indicator (red LED)	no
Volume adjustment potentiometer	no
Computer interface	USB 1.1, isochronous full-speed data transfer mode
Supply current	500 mA (drawn from USB)
Physical dimensions (W/H/D)	90 x 56 x 116 mm
Weight	360 g
Included software	Avisoft-RECORDER USGH, version 3.4.2 or later for playing .wav files

## Computer requirements

Windows PC with at least one USB 1.1 or 2.0 port, running Windows XP / Vista / 7

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