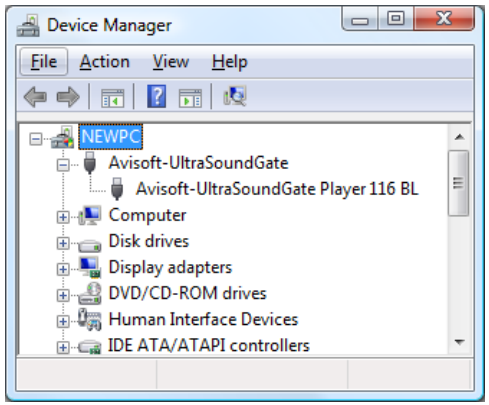
Introduction

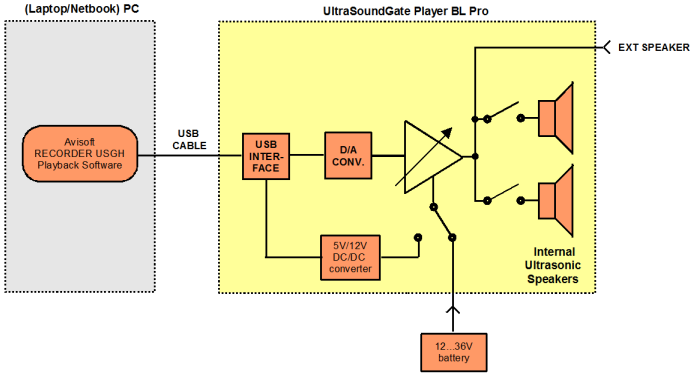
Thank you for purchasing Avisoft UltraSoundGate PlayerBL Pro 2. This bus-powered USB device provides a 16 bit D/A converter, a power amplifier and one or two integrated speakers.
The accompanying recording software Avisoft-RECORDER USGH can play common .wav files acquired by the Avisoft-UltraSoundGate ultrasound recording hardware or other third-party equipment, such as time-expansion bat detectors.

Installation procedure

First download and install the RECORDER USGH software from the Avisoft Bioacoustics website (www.avisoft.com/downloads or directly www.avisoft.com/RECORDER%20USGH.exe). This installation program will install both the RECORDER USGH application (rec_usgh.exe) and the required device drivers (usgh_xx16h.inf, usgh.sys) for the UltraSoundGate xx16H devices. 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” and the pre-installed driver should be finally activated.

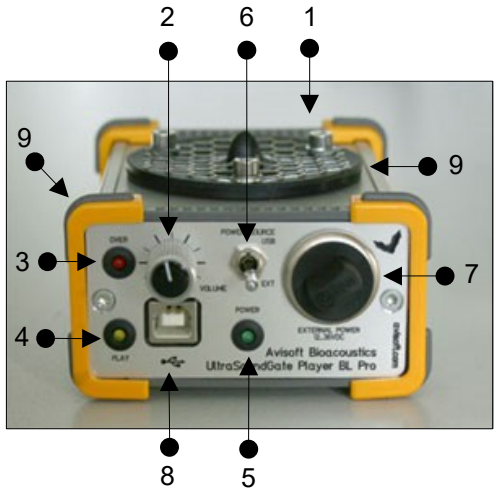
Under some circumstances it might happen that the silent installation of the device driver fails. If that happens, navigate to the *Windows Control Panel* > *Hardware and Sound* > *Device Manager* and right-click at the entry *Other devices* > *Avisoft Avisoft-UltraSoundGate Player* and select the *Update Driver Software...* option. Then click at *Browse my computer for device driver software,* click at *Browse* and navigate to the folder *C:\Program Files (x86)\Avisoft Bioacoustics\RECORDER USGH\Drivers* and finally click at *Next*. The completed device driver installation will then look like this:





Functional principle of the UltraSoundGate Player BL Pro 2

Components of the USG Player BL Pro 2



1 Speaker Output Connector

The 4-pole SpeakON connector allows to attach an additional external speaker. The pin assignment is as follows:

1- Speaker ground
1+ Speaker output signal
2- not connected
2+ not connected

2 Playback volume adjustment knob

This control knob adjusts the analog output level of the power amplifier.

3 OVERload indicator

The red OVERload LED indicates clipping. Clipping occurs when the power supply voltage for the power amplifier section is not high enough to reproduce the input signal at the current playback volume setting without distortion. If this happens, the playback volume (2) should be reduced or the external power supply voltage (connected to 7) should be increased.

4 PLAY LED

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

5 POWER indicator

This green LED indicates the presence of the power supply voltage for the power amplifier section of the unit.

6 POWER source selector

This switch allows to select the power supply source for the power amplifier section of the device. If the switch is at the ***USB*** position (up), the amplifier will be powered from the USB. Due to certain power constraints, the maximum playback power will be limited in this case to about 1 W. At the ***EXT*** position (down), the amplifier is powered from an externally provided supply voltage (7).

7 External power supply socket (+12...36V)

This male 4pole XLR socket allows to connect an external supply voltage in order to increase the playback power capabilities. The voltage should be between 12 and 36V DC. At 12V, the maximum available power is about 1W, at 36V it is about 10W. The pin assignment is as follows:

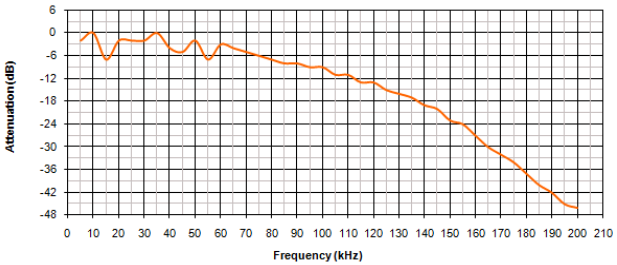
1 Power ground (battery -)
2 Power ground (battery -)
3 +12...36V power (battery +)
4 +12...36V power (battery +)

8 USB 1.1 interface

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

9 Speakers

The two inbuilt speakers can be activated separately by the two switches on the upper side of the housing. If an external speaker is attached, the internal speaker can be either switched on or off.

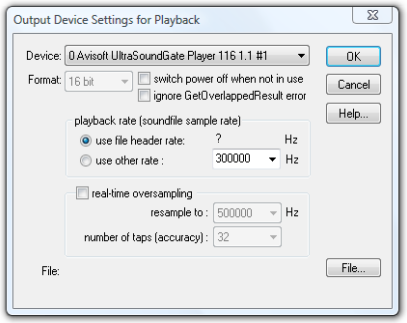


Frequency response of the inbuilt speakers

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 441 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 x 44.1 kHz = 441 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.

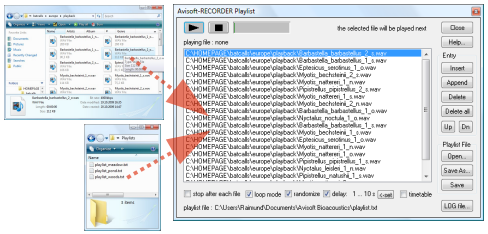
There are various different ways for playing .wav files through the USG Player BL:

a) Select the desired file from the command "***Play***"/"***File...***" and then play it from the command "***Play***"/"***Start***" (Shift+Spacebar)

b) Locate the desired .wav file on a Windows folder and drag it into the RECORDER USGH window. The playback will then start immediately.

c) 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.

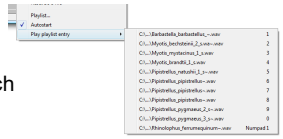


The playlist option **loop mode** will continue to play the contents of the playlist until the stop button is pressed. The option **randomize** will play the files in random order. Use the option **delay** to insert a user-defined delay between consecutive files. The desired delay can be defined from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

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 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...".



To become familiar with the RECORDER USGH software use the online help system that can be accessed through the drop-down menu ***Help > Help...***, the ***Help...*** buttons on the individual dialog boxes or the website at http://www.avisoft.com/Help/RECORDER/content.htm.

Avisoft ULTRASOUNDGATE

USG Player BL Pro 2

User's Guide

Luring Bats into Mist Nets

A collection of European bat calls that are suited for luring bats is available for download at https://www.avisoft.com/batcalls/ or https://www.avisoft.com/batcalls/europe/playback/batcalls.zip.

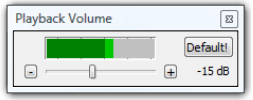
In order to prevent habituation, the calls should not be played continuously. Use the **randomize** and **delay** options of the Playlist command to create breaks between the individual files. A large repertoire of different bat calls should also prevent habituation. Fortunately, there is virtually no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

Adjusting the Playback Level

The playback level can be adjusted by using the playback adjustment knob on the front panel of the USG Player.

In addition to that, the level can also be modified from the RECORDER USGH command **Play**/**Playback Volume...** Note that this adjustment option applies a digital attenuation or gain the 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).



The maximum sound level that can be achieved with the USG Player BL is limited by the power supply voltage. If the supply voltage is not high enough for reproducing the waveforms at a certain gain, the signal will be clipped, which will cause unwanted harmonic distortions.

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 (USB bus-powered) or 10 W (with external 36V power supply)
Max sound pressure level bus-powered: external power (36V):	 100dB @ 10cm (80dB @ 1m) 120dB @ 10cm (100dB @ 1m)
Frequency range	1 ... 125 kHz
Slew rate	8 V/µsec
Overload indicator (red LED)	yes
Volume adjustment potentiometer	yes
Speaker output connector	4-pole SpeakON connector
Computer interface	USB 1.1, isochronous full-speed data transfer mode
Supply current	400 mA (drawn from USB) or up to 1A from an external 12...36 V
Physical dimensions (W/H/D)	90 x 56 x 190 mm
Weight	600 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 Vista / 7 / 8 / 10 / 11

Avisoft Bioacoustics e.K.
Goethestr. 47
16548 Glienicke/Nordbahn
Germany

Phone: +49 (0)33056 426086
www.avisoft.com

sales@avisoft.com

Real-time playback visualization

The currently played waveforms can be visualized by selecting the option **Playback** from the **Device** listbox on the Configuration dialog box (**Options / Configuration...**) Once this has been done, the currently played waveform will be visualized either on the spectrogram or waveform display mode. In order to prevent creating (triggering) new .wav files, the monitoring pause button (**Monitoring / Pause**) should be activated.

Interactive playback on tablet PCs

The command **Play / Show playlist entries on touch panel** will launch a separate *Interactive Playback* window representing reach file on the currently selected playlist as a large button, which facilitates interactive playback experiments on computers with touch screen. The window can be resized according to the personal preferences. The buttons are by default labeled by the index number of each file in the playlist. In order to customize the appearance of the individual buttons, it is possible to assign user-defined bitmap (.bmp) and text (.txt) sidecar files. These files must be located in the same folder and have the same filename as the corresponding .wav files. The bitmap graphics file would then replace the default number and the content of the .txt file would replace the default filename label. The playlist can be created or opened from the command Play/Playist… or it can simply be dragged into the *Interactive Playback* window. Alternatively, the playlist could also be created in a simple text editor (each .wav file with its complete path name must be in a separate line that is terminate by newline control characters).