

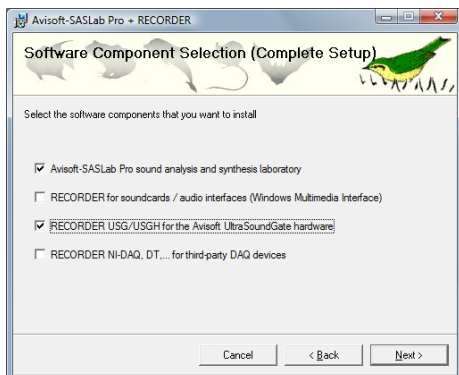
Introduction

Thank you for purchasing Avisoft UltraSoundGate 116Hnbm. This bus-powered USB device supports single-channel high-speed data acquisition at sampling rates of up to 300 kHz.

The accompanying recording software Avisoft-RECORDER USGH provides either continuous or triggered direct-to-disk recording with real-time spectrogram displays.

Installation procedure

First install the RECORDER USGH software from the supplied software installation media. The installation procedure will require administrator rights. Check the option "RECORDER USG/USGH for the Avisoft UltraSoundGate hardware" on the Software Component Selection panel:



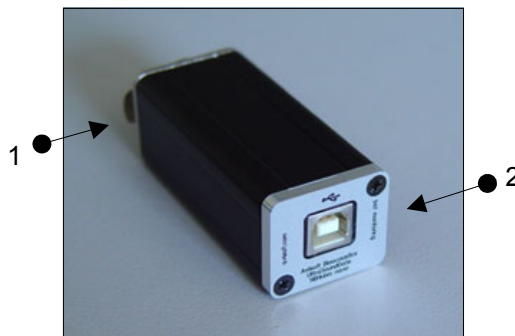
At the same time, the required device drivers (usgh_xx16h.inf, usgh.sys) for the UltraSoundGate XX16H devices will be installed. When the installation procedure has completed, the UltraSoundGate unit can be connected to the computer. The device should then be detected as "Avisoft-UltraSoundGate 116H" and the pre-installed driver should be finally installed. 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 at C:/Program Files/AvisoftBioacoustics/Drivers.

Getting started

The supplied RECORDER USGH software can be launched from **Start / All Programs / Avisoft Bioacoustics / RECORDER USGH**

On the first program start, the configuration dialog box will be launched automatically (otherwise it is available from **Options / Configuration**). Select the desired **Sampling rate** from the **Input Device Settings** section and click at **Ok**. Then click at the **Pause** button (**Monitoring/Pause**) and the **Start** button (**Monitoring/Start**). You will then see the real-time spectrogram displaying the incoming signals. For details on the operation of the RECORDER software see the Avisoft-RECORDER manual and the section **RECORDER USGH Software Settings** in this guide.

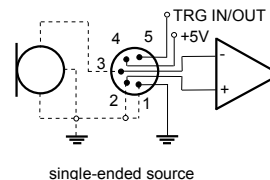
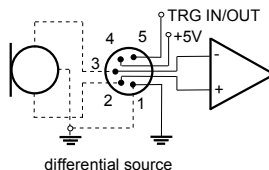
Components of the UltraSoundGate 116Hnbm



1 XLR input connector

The 5-pole XLR input connector represents the analog inputs of the recording device and provide power supply voltages for external amplifiers and microphones. The connector scheme is as follows:

- 1 Ground
- 2 Positive input
- 3 Negative input
- 4 +5V supply voltage (max current 20 mA)
- 5 TRG input/output or 200V polarization voltage (optional)



2 USB 2.0 interface

Specifications


Number of channels	1
ADC type	Delta-Sigma architecture with integrated adaptive anti-aliasing filter
Resolution	16 bit
Sample rates [kHz]	300, 250, 214, 187.5, 166.6, 150, 125, 100, 75, 62.5, 50
Frequency response (-3dB)	20 Hz - 135 kHz
Input sensitivity	-9 dBV = -7 dBu = 0.35 Vrms
Input impedance	50 kOhm
Analog input connector	female XLR-5 socket
Computer interface	USB 2.0, isochronous high-speed mode
Supply current (drawn from the USB)	120 mA
Physical dimensions (W/H/D)	31 x 26 x 80 mm
Weight	90 g

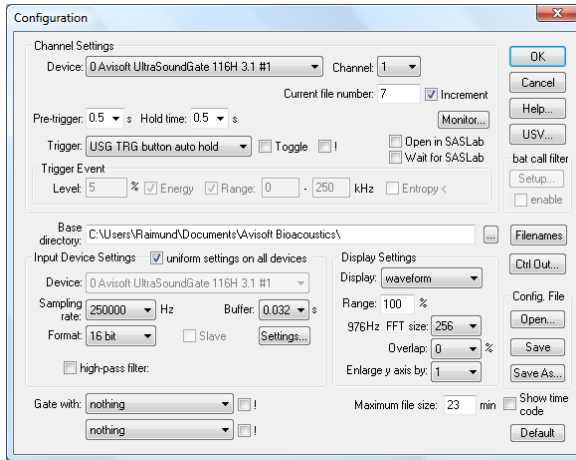
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RECORDER USGH Settings

The configuration dialog box can be launched from the menu Options/Configuration... or through the button 



The input sample rate can be selected from the **Input Device Settings** section. Available sample rates are 300, 250, 214, 187, 166, 150, 125, 100, 75, 62 and 50 kHz.

The **Buffer** setting determines the USB transfer buffer size on the PC. Shorter durations will provide low real-time spectrogram display latencies but might lead to erroneous USB transfers under certain conditions.

The **Settings...** button in the **Input Device Settings** section launches the **Advanced USGH Device Settings** dialog box that provides several additional device-specific options :

Enable master/slave mode for synchronizing several devices This option has no effect on the model 116Hnbnm.

Activate slave mode for this device This option has no effect on the model 116Hnbnm.

Enable low power mode The A/D converter chip can optionally be operated in a power-saving mode that would increase the battery life in mobile laptop-based systems. The low-power mode slightly degrades the dynamic range performance.

Enable automatic offset compensation If activated, this option removes potential DC offset voltages from the input signal.

Enable band-pass mode At a few sample rates (50, 62.5, 75, 150, 187.5, 200 and 250 kHz), the A/D converter can be configured for a special band-pass mode in which the analog input bandwidth ranges from $f_s/2$ to f_s instead of the normal mode from 0 to $f_s/2$. This option can be advantageous for monitoring applications that require minimal .WAV files sizes. Note that the frequency scale of the resulting .WAV files will be reversed.

Turn on the polarization voltage This option has no effect on the model 116Hnbnm, unless the unit has the 200V polarization voltage generator option.

Ignore GetOverlappedResult error By default, the *GetOverlappedResult* error message will stop the monitoring/recording process. If this option is activated, the monitoring procedure will be immediately restarted, which is desired in long-term monitoring applications.

TRG out mode This option allows to change the I/O direction of the TRG pin (XLR pin 5). If activated, the TRG pin will be configured as a digital output that carries the state of an internal trigger or the file saving state as selected from the *Control Output settings* dialog box (*Ctrl Out...* button). In this case, the *USG TRG button* trigger source options will not work.

Monitor undersampling ratio This option has no effect on the model 116Hnbnm

Sound-activated recording can be arranged by selecting the **Trigger source option level of this channel**.

The Pre-trigger duration should be kept as short as possible. Long pre-trigger settings can lead to data transmission errors if the sample rate and the number of channels is high.

In order to simplify the operation of the Avisoft-RECORDER software in the field, a link to **RECORDER USGH** may be added to the Windows **Startup folder** (*Start->All Programs->Startup*). Additionally, the Avisoft-RECORDER option **Monitoring/Autostart** should be activated. This arrangement will start the monitoring process automatically after booting the laptop (the UltraSoundGate device must be attached to the USB port prior to booting Windows).

The menu **Options/Configurationmanagement/Presets** provides a number of default settings that might help to configure the system for a specific task.

Note that the relatively low gain of the UltraSoundGate 116Hnbnm requires that the trigger threshold is set to a low level. For passive bat monitoring try the preset **Options / Configurationmanagement / Preset / Bat monitoring using USG116Hnb(m)**. It is also recommended to activate the option **x10** on the Display Settings section of the Configuration Dialog box.

Please refer to the users guide or the online help system for further details on the Avisoft-RECORDER software.

