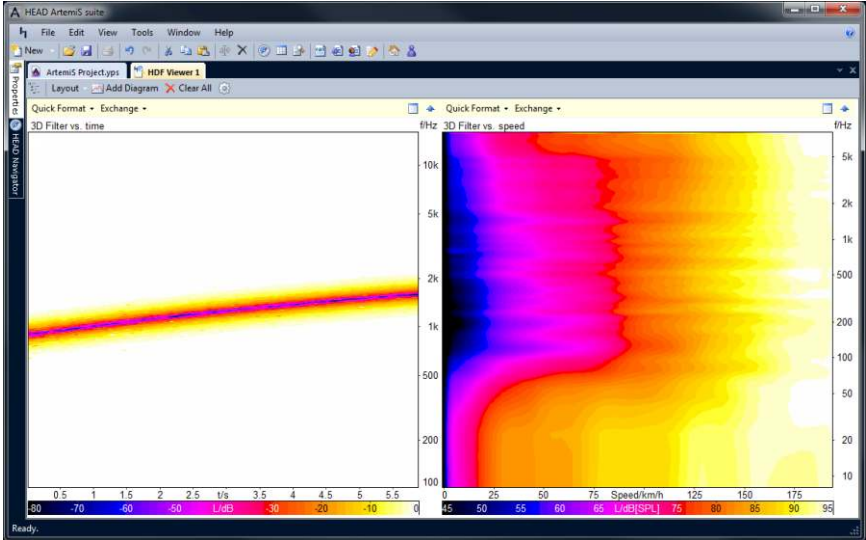


DATA SHEET

ArtemiS SUITE Adv. Filters Module (Code 5019)

ArtemiS SUITE Module for the modification of time signals with FIR filters



Overview

The Advanced Filters Module provides FIR filters. ASM 19 allows to load an FIR filter stored in an HDF file and apply it to an input signal. Transfer functions, averaged FFT spectra and 3D filter files, containing transfer functions or other spectra (e.g. 1/n octave spectra vs. time or vs. another reference quantity like RPM or speed) can be used as filter data sets.

For the application of the 3D filters the corresponding transfer function is extracted at the particular position and used for filtering.

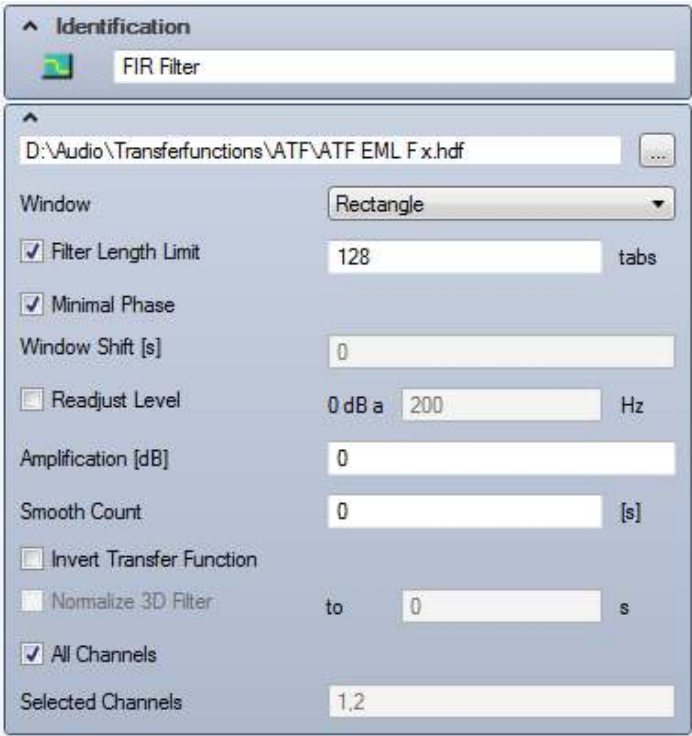
The transfer characteristics of the FIR filter are editable within wide limits.

Features

- Expansion module of the ArtemiS SUITE for FIR filters:
- FIR filters with filter characteristics adjustable in the frequency domain
- Inverting of transfer functions
- Smoothing functions
- Input options: Transfer Function, Spectrum, Impulse Response
- In addition to the features included in the Advanced Filters Module of the ArtemiS SUITE, ArtemiS 12 provides the options of the Advanced Filter Module (ATP 09).

Requirements

- ArtemiS SUITE Basic Framework (Code 5000)
- ArtemiS SUITE Basic Analysis Module (Code 5001)



Property page: FIR filter

Filter-Pool

Non-recursive Filter FIR

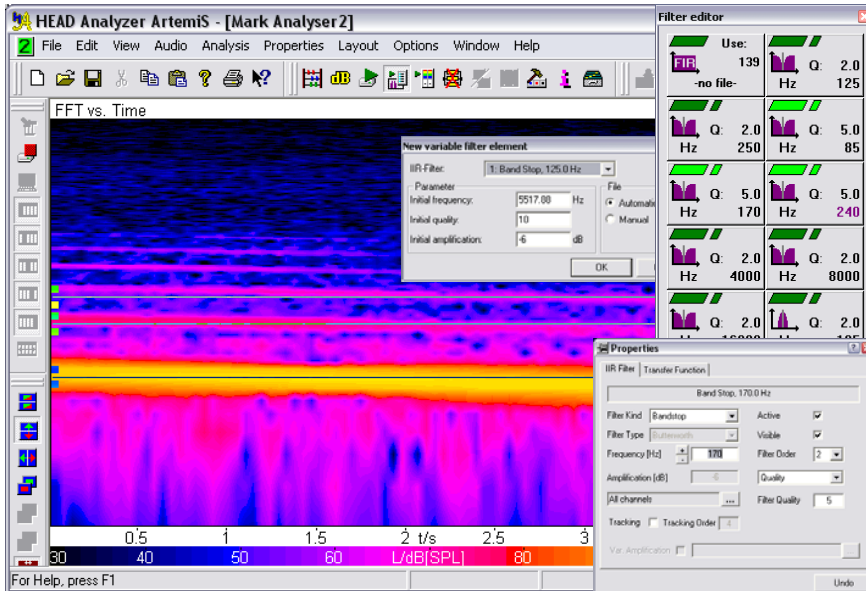
Filter name:	Loading a filter stored in a HDF, DAT or FFT file
Window:	Rectangle / Hanning
Filter Length Limit:	0 - n taps
Minimal Phase:	Selectable
Window Shift (s):	0 - n ms
Readjust Level:	Selectable
Amplification (dB):	Selectable
Smooth Count:	Selectable
Invert Transfer Function:	Selectable
Normalize 3D Filter to:	For 3D filters (transfer functions vs. time or RPM, speed, ...) the particular used transfer function can be referred to an adjustable position (time, RPM, speed, ...).
All Channels:	The filter will be applied to all channels
Selected Channels:	Selectable

ATP 09 (Code 5019)

Advanced Filter Module for ArtemiS

for the modification of time signals with FIR filters, tracking filters and variable filters

ASM 19 (Code 5019) of the ArtemiS SUITE includes ATP 09.



Overview

With the advanced filter module ATP 09, up to 16 IIR filters and one FIR filter can be activated simultaneously within a filter bank. All filters can be flexibly modified and grouped, and their characteristics can easily be changed numerically or with the mouse.

Variable filter elements, the FIR filter editor, parametric and tracking filters (with ATP 03) further extend the scope of applications.

Features

- Simultaneous activation of up to 16 IIR filters and one FIR filter within a filter bank
- FIR filters with filter characteristics adjustable in the frequency domain
- Parametric IIR filters
- Harmonic filters
- Pitch Shift / Time Stretch
- Variable filters / variable tracking filters (ATP 03) with variable attenuation or amplification
- Use of transfer functions as filtering functions
- Interactive, mouse-controlled filter design; the influence on the signal can be visualized immediately via spectrum morphing
- Filters with variable time and frequency curves
- Octave filters, $\frac{1}{3}$ -Octave filters and $\frac{1}{6}$ -Octave filters

Applications

- Simulation of system properties
- Interactive filtering and acoustic control (with ATP 01)
- Sound optimization
- Creation of individual transfer curves
- Detection of disturbing sound components

Specifics

- Time-stretching or compressing of audio signals by a factor between 0.5 and 2 without affecting the pitch
- Changing the pitch of audio signals without affecting the signal length (up to one octave higher or lower)

IIR

- Variable amplification

FIR

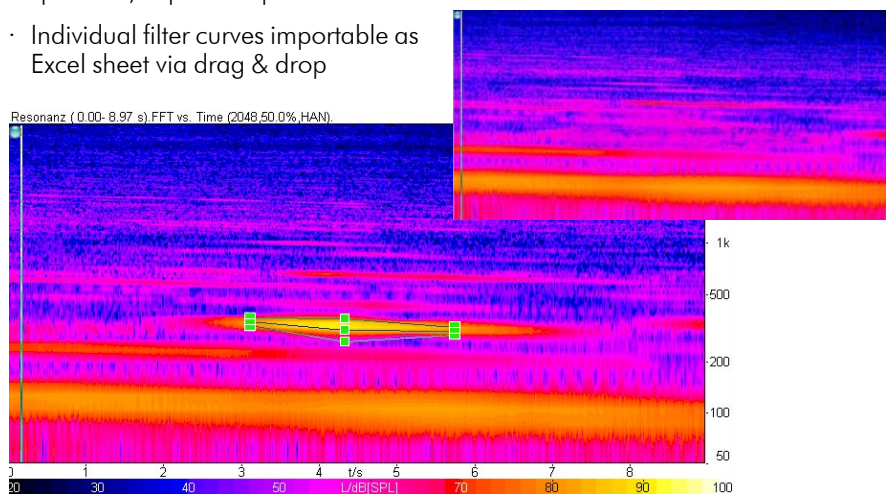
- Inversion of transfer functions
- Smoothing functions
- Input possibilities: Transfer function, spectrum, impulse response
- Individual filter curves importable as Excel sheet via drag & drop

Variable filter elements

Furthermore, ATP 09 allows variable filter elements to be designed, which can be used to filter certain time sections of the audio signal.

A graphical user interface allows the filter parameters (frequency, quality and amplification) to be adjusted separately for any selected position on the time axis.

The number of selectable points is not limited.



Variable filters can be used individually for selected time segments. The upper right diagram shows the filtered signal.

Technical data:***FIR filters***

Window:	Rectangle / Hanning
Window shift:	0 - n ms
Filter length limit:	0 - n taps
Smooth:	0 - n s
Readjust level:	0 dB (0 - n Hz)
Amplification:	0 - n dB
Export / Import:	HFC (filter files) Regular (32 / 44 / 48 kHz) / Downs. 2 (16 / 22 / 24kHz) up to Downs. 32 (1 / 1.4 / 1.5 kHz)

Editor for new transfer functions

Channels:	1 - n
Phase:	minimal phase / linear
Sampling freq.:	0 - 100000 Hz

Equalization

Equalization filter, available:	Linear / BHM III / FF, DF, ID for HSU II / HSU III / MHS II
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IIR filters

Number:	16
Frequency (Hz):	1 - 24000 Hz
Filter kind:	Bandstop / Bandpass / Highpass / Lowpass / Allpass / Param. Highpass / Param. Bandpass / Param. Lowpass / Octave Bandpass / 3rd Octave Bandpass / 6th Octave Bandpass
Filter type:	Butterworth / Bessel / Tschebycheff 0.5 - 3 dB
Amplification for parametric filters:	-48 - +48 dB
Filter order:	1 - 4
Filter quality:	0.1 - 1000

Editor for new transfer functions

Channels:	1 - n
Phase:	minimal phase / linear
Sampling freq.:	0 - 100000 Hz

Pitch shift / Time stretch

Pitch shift:	0,5 - 2
Time stretch:	0,5 - 2