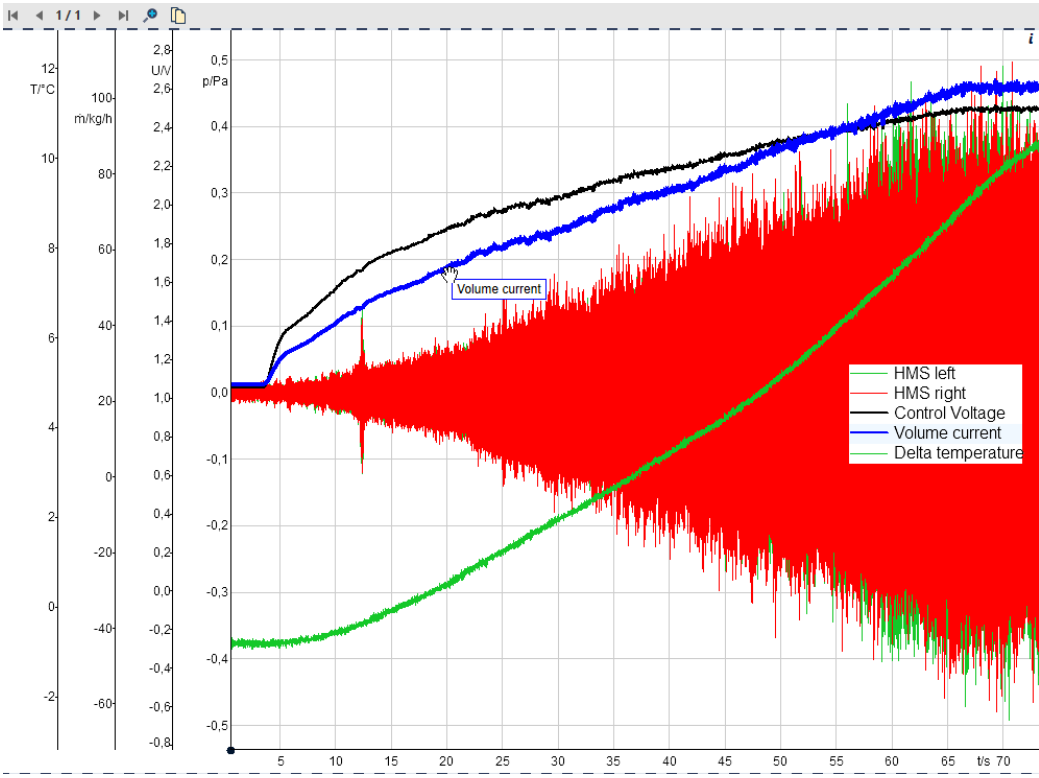
HEAD acoustics

DATA SHEET



ArtemiS SUITE
Signal Processing

Code 51002

ASP 002 Basic Analysis vs. Control Channel

Basic Analysis vs. Control Channel of ArtemiS SUITE provides users with basic analyses which can be calculated depending on different control channels (RPM, force, ...).

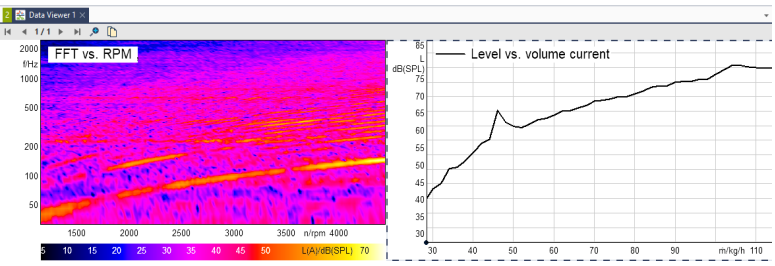
OVERVIEW

ASP 002 Basic Analysis vs. Control Channel

Code 51002

Basic Analysis vs. Control Channel enables users to perform sound analyses versus a number of different control channels.

The most common case is the representation versus rotational speed (RPM). In addition, Basic Analysis vs. Control Channel also offers the possibility to display analysis results versus any analog channel contained in the file. That way, it is possible to show the dependency of other signal levels such as such force, temperature, or volume current.



KEY FEATURES

Basic Analysis vs. Control Channel provides several analyses, which can be calculated versus RPM, force, temperature, or other control channels

- FFT vs. RPM
- 1/n Octave Spectrum (FFT) vs. RPM
- Power Spectral Density vs. RPM
- Level vs. RPM
- Level vs. RPM (filtered)
- Gated Time Cuts
- Gated Time Cuts (average)
- RPM vs. Time
- Signal vs. RPM

For displaying the analysis results, ArtemiS SUITE offers several easy-to-use options to select and adjust the control channel

- Pool Project: The control channel is selected via the Source Pool in the Properties dialog of an individual mark or a folder
- Automation Project and Standardized Test Project: The control channel can be selected with the Select Channels process element

The analyses can be used in Pool Projects (require APR 010), Automation Projects (require APR 050), Standardized Test Projects (require APR 220), and Metric Projects (require APR 570)

APPLICATIONS

- Troubleshooting
- Sound-Engineering

DETAILS

Various basic analyses vs. control channel facilitate the daily work routine and allow customers to examine input signals more closely.

FFT vs. RPM

The FFT vs. RPM analysis calculates the FFT spectrum of the input signal versus a control channel. In contrast to the FFT vs. Time analysis, the time windows for the transformation will not be spaced as determined by FFT length and overlap. Each time the control channel reaches the next step as selected by the property Step Size, a time window will be selected centered on that particular point of the time signal.

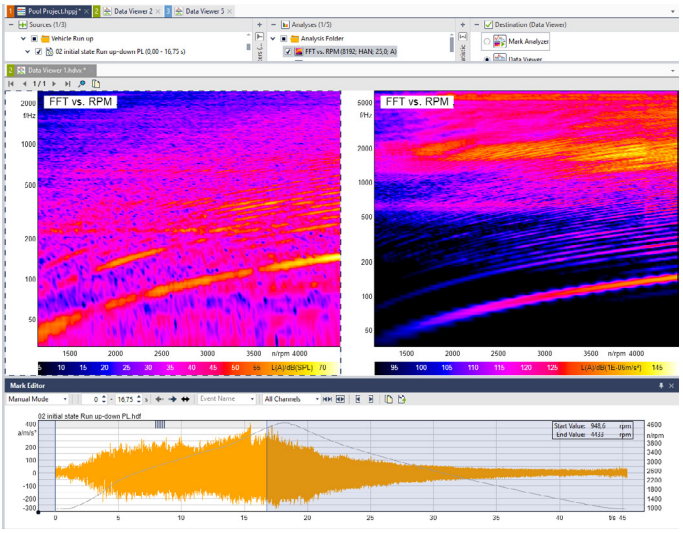
1/n Octave Spectrum (FFT) vs. RPM

The 1/n Octave Spectrum (FFT) vs. RPM analysis calculates the 1/n octave spectrum of the input signal versus a control channel whereby the sub-bands are calculated by proportional integration of the corresponding spectral line powers from the FFT spectrum.

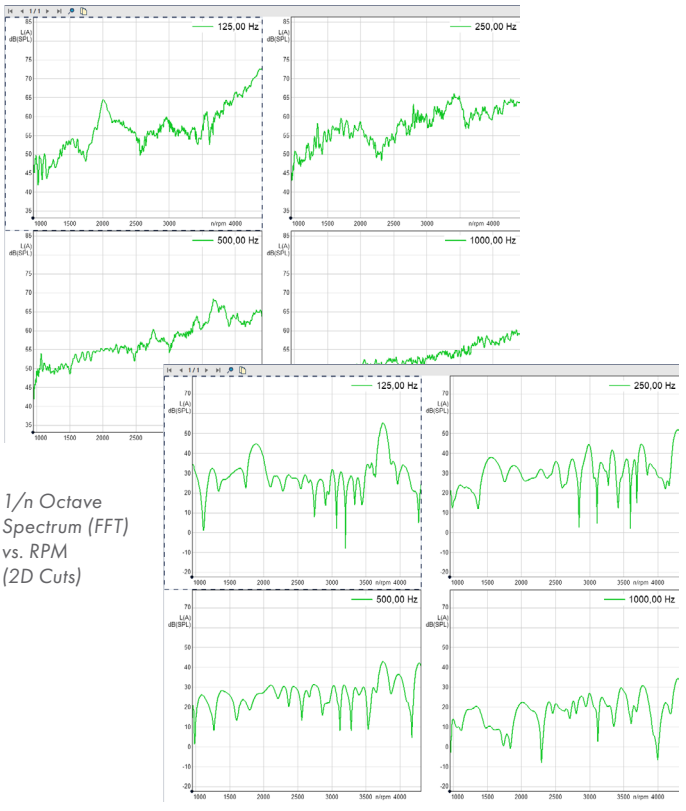
At the band borders, the powers of individual spectral lines are proportionally distributed to adjacent sub-bands.

Power Spectral Density vs. RPM

The Power Spectral Density vs. RPM analysis calculates the power spectral density (PSD) of an input signal versus a control channel. It is comparable with an FFT vs. RPM analysis. Whereas there the power is related to the bandwidth corresponding to the DFT (sampling rate divided by the DFT length), for the power spectral density the power is always related to 1 Hz. Therefore, the results are independent of the spectrum size even for signals having a high noise ratio.



FFT vs. RPM



1/n Octave Spectrum (FFT) vs. RPM (2D Cuts)

Power Spectral Density vs. RPM (2D Cuts)

Level vs. RPM, Level vs. RPM (filtered)

The Level vs. RPM analysis determines the level variation of the input signal versus a control channel. Step Size [RPM, ...], Slope, and further parameters can be adjusted. The filtered Level vs. RPM analysis determines the filtered level variation of the input signal versus a control channel.

RPM vs. Time

The RPM vs. Time analysis displays the RPM of an input signal versus the time. It is used to read the RPM information contained in a time signal and then display it versus the time. Besides the Tolerance and the Representation Settings it has no further parameters.

Signal vs. RPM

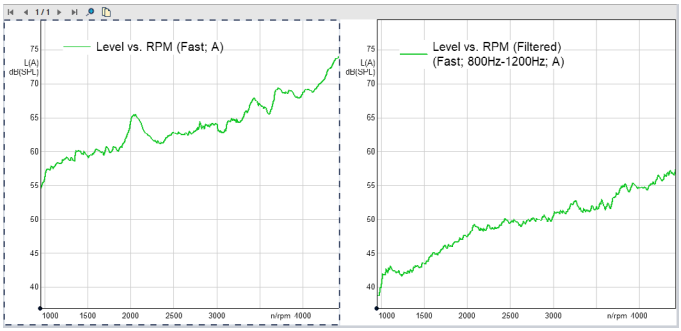
The Signal vs. RPM analysis calculates the signal course of an input signal versus a control channel. Step Size [RPM, ...], Slope, and further paramerters can be adjusted.

Gated Time Cuts, Gated Time Cuts (average)

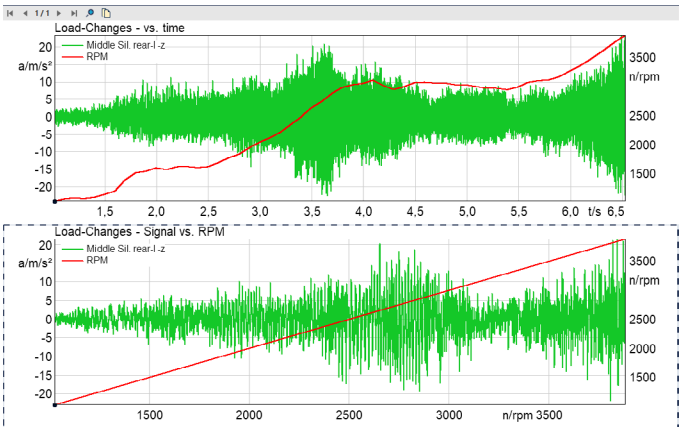
The Gated Time Cuts analyses enables a spectrographic view of a continuous time signal. Thereby the continuous time signal is separated into short time segments and stored in a 3D HDF file. This way it is possible to even represent time signals as spectrogram or waterfall diagram. The time signal can be separated either into time-constant or angle-constant segments. In case of an angle-constant separation, the time axis is resampled to the number of rotations.

Required: APR Framework (Code 50000)

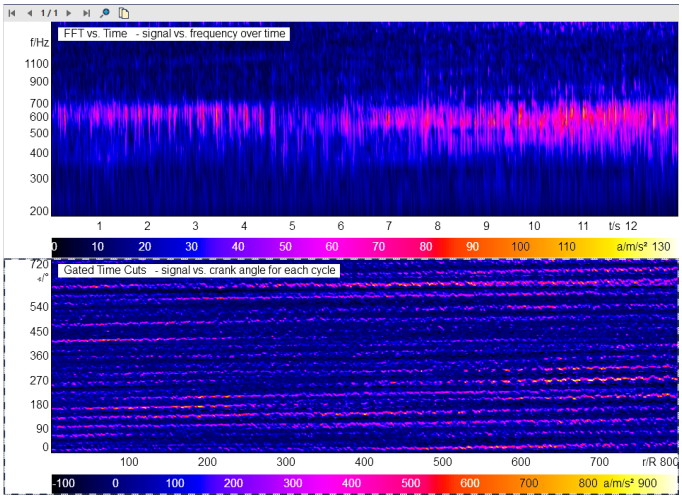
and/or: HEAD System Integration and Extension (ASX) programming interfaces



Level vs. RPM (filtered)



RPM vs. Time, Signal vs. RPM



Gated Time Cuts, FFT vs. Time

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Contact Information

Ebertstrasse 30a
52134 Herzogenrath, Germany
Phone: +49 (0) 2407 577-0
E-Mail: sales@head-acoustics.com
Website: www.head-acoustics.com