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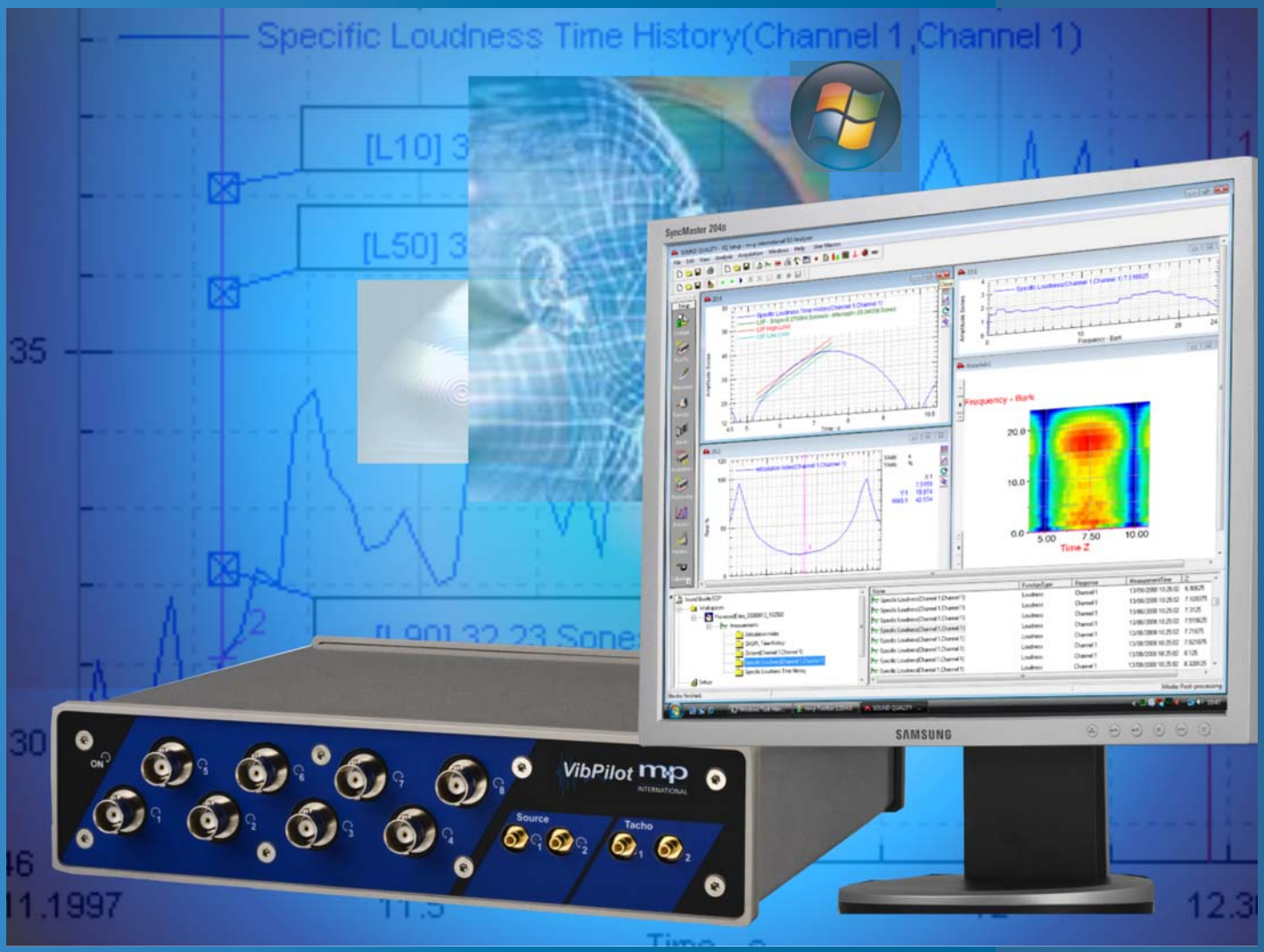
SO Analyzer Revision 3.3

Update Note

- VibPilot Hardware Support
- Microsoft Windows Vista Operating System
- Sound Quality Module
- Least Squares Fit & Statistics Analysis in 2D Charts
- Project Catalogue to Manage Large Data Sets



VibPilot Hardware Support

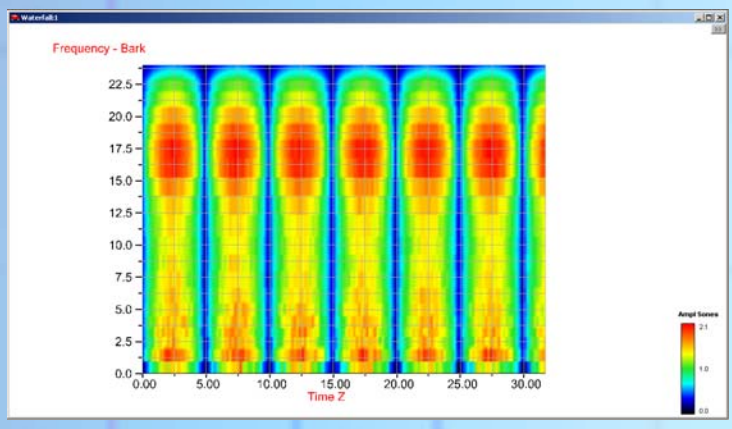
For the first time in the history of the company, m+p international has developed their own hardware platform for dynamic signal analysis applications, named VibPilot. No question that the latest version of the SO Analyzer software supports this portable, fan-less 4- or 8-channel front-end with 24-bit resolution and USB 2.0 interfacing. Full support comprises all native sample frequencies from 1024 Hz to 102.4 kHz and input modes including AC/DC floating or grounded as well as ICP user selectable on each channel.

Microsoft Windows Vista Operating System

Good news to all those who plan to change to Vista: SO Analyzer is now fully operational under the Microsoft Vista operating system. Of course, it still supports Microsoft Windows NT, 2000 and XP.

Sound Quality Module

The complexity of the human senses means that our perceived loudness and quality of a noise source does not map well to conventional FFT or third octave analysis. Classic A and C weighting go some way to improving evaluation but these do not take the non-linear effects of the human ear into account.



The basis of the SO Analyzer Sound Quality Analysis is Zwicker loudness that provides standardised methods for this type of analysis. The following functions are available both as online and post-processed analysis and can be computed from either narrowband or octave based spectra:

- Specific loudness: a sones/bark spectrum
- Loudness time history: for analysing time varying events
- Transient loudness: spectrum taking the ears temporal masking into account
- Sharpness time history: a time history of the perceived quality relating to higher frequencies
- Articulation index: a measure of the intelligibility of speech in a given noise environment
- Percentile loudness: a time history mapping the critical band frequency containing a given overall loudness for statistical analysis

These functions can be viewed as 2D, 3D or as colour maps (spectrograms) for further analysis.

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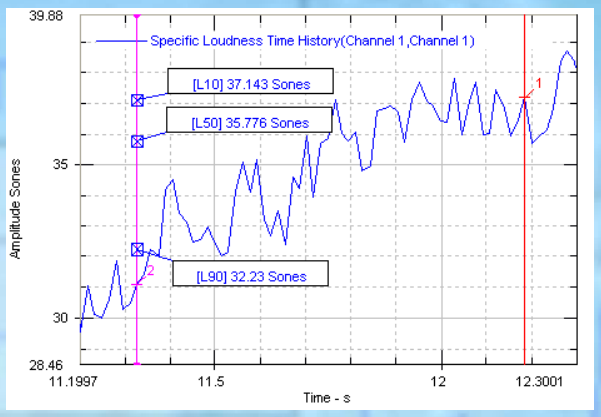
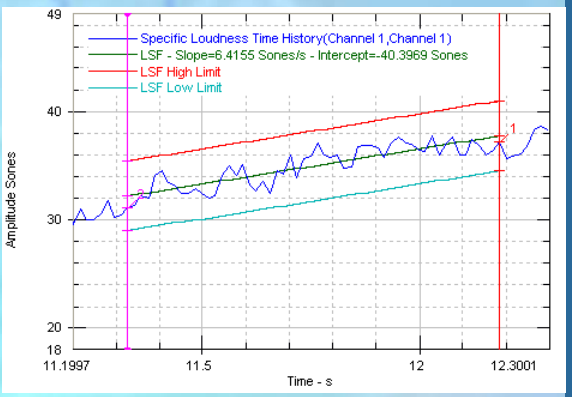
Percentile Calculations

To augment the sound quality analysis but available as part of the standard system the L(10), L(50) and L(90) percentile calculations have been added to the value table calculations. These values are common statistical functions used as sound quality metrics typically on loudness time histories and define the levels exceeded 10%, 50% and 90% of the time.



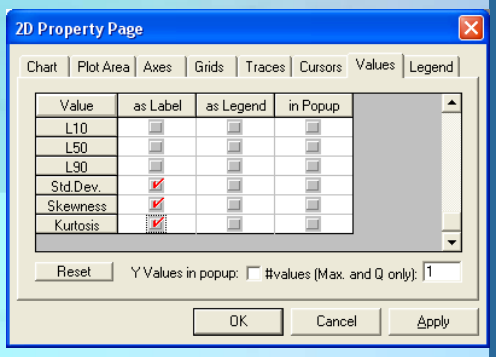
Least Squares Fit Analysis

Another analysis tool added to the 2D chart is the Least Squares Fit function. This computes the best straight fit line between cursors for the first measurement in the chart and creates additional measurements in the chart for the line calculated and upper/lower limit lines.



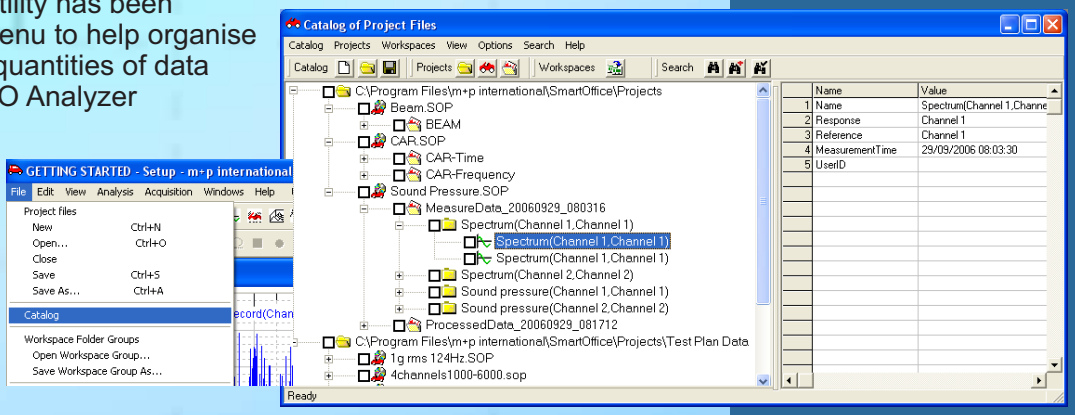
Amplitude Distribution Statistics

Standard deviation, skewness and kurtosis have been added to the value table functions. These are common statistical functions used to describe time history data. In shaker test applications they are often used to compare real world signal distribution to Gaussian random signals for test tailoring and validation.



Project Catalogue Utility

A new Catalogue Utility has been added to the File menu to help organise and manage large quantities of data stored in multiple SO Analyzer project (.SOP) files.



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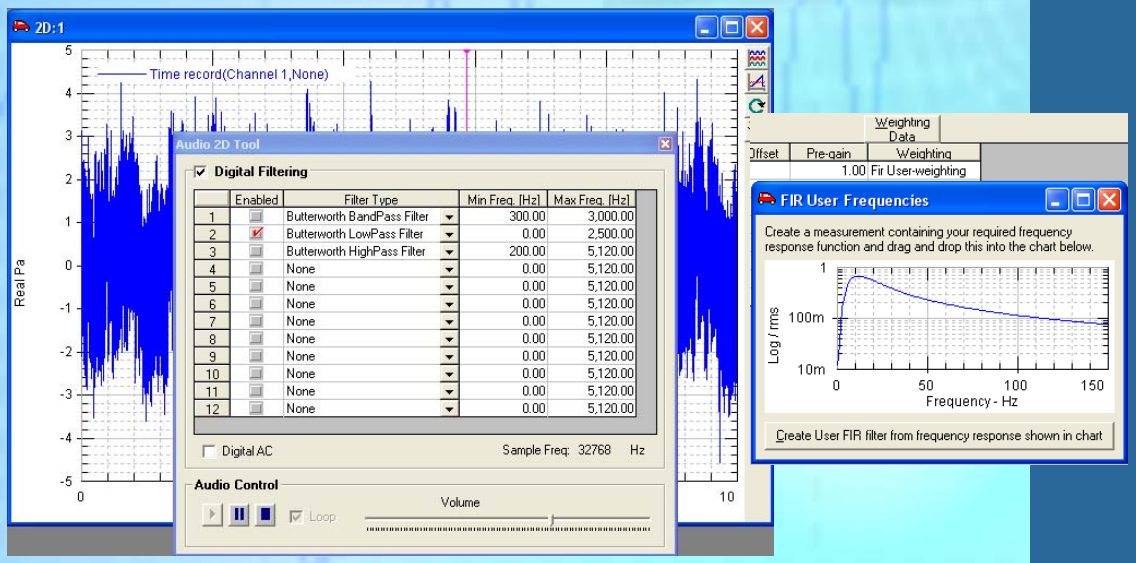
Grouping by Function

To give even greater flexibility to how data is organized when saved at the end of the measurement run a new "Group by Function" option has been added to the configuration page. In the cases where the saved functions only create one result per channel the results from all channels are saved together in one measurement group for each function.

Other New Features

SO Analyzer Revision 3.3 provides many more upgrades, for example:

- Input channels can be weighted by FIR filters (including used-defined filter shape)
- Sound replay table of multiple filters
- SO Analyzer USB module: full support for all strain bridge types
- Leq response type in octave measurements
- Key sensor data can be saved to every measurement result



This Update Note provides you with an overview of the most significant product enhancements of SO Analyzer Revision 3.3. There are other new functions that make the SO Analyzer even more powerful and user-friendly.

The new software revision has resulted primarily from the close and valuable cooperation with you, our customers. We optimize the SO Analyzer continuously. Therefore, if you have any suggestions that could further improve our product offering, please let us know.

SO Analyzer 3.3 is available now. Please do not hesitate to contact us.

Update Note

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