m+p INTERNATIONAL

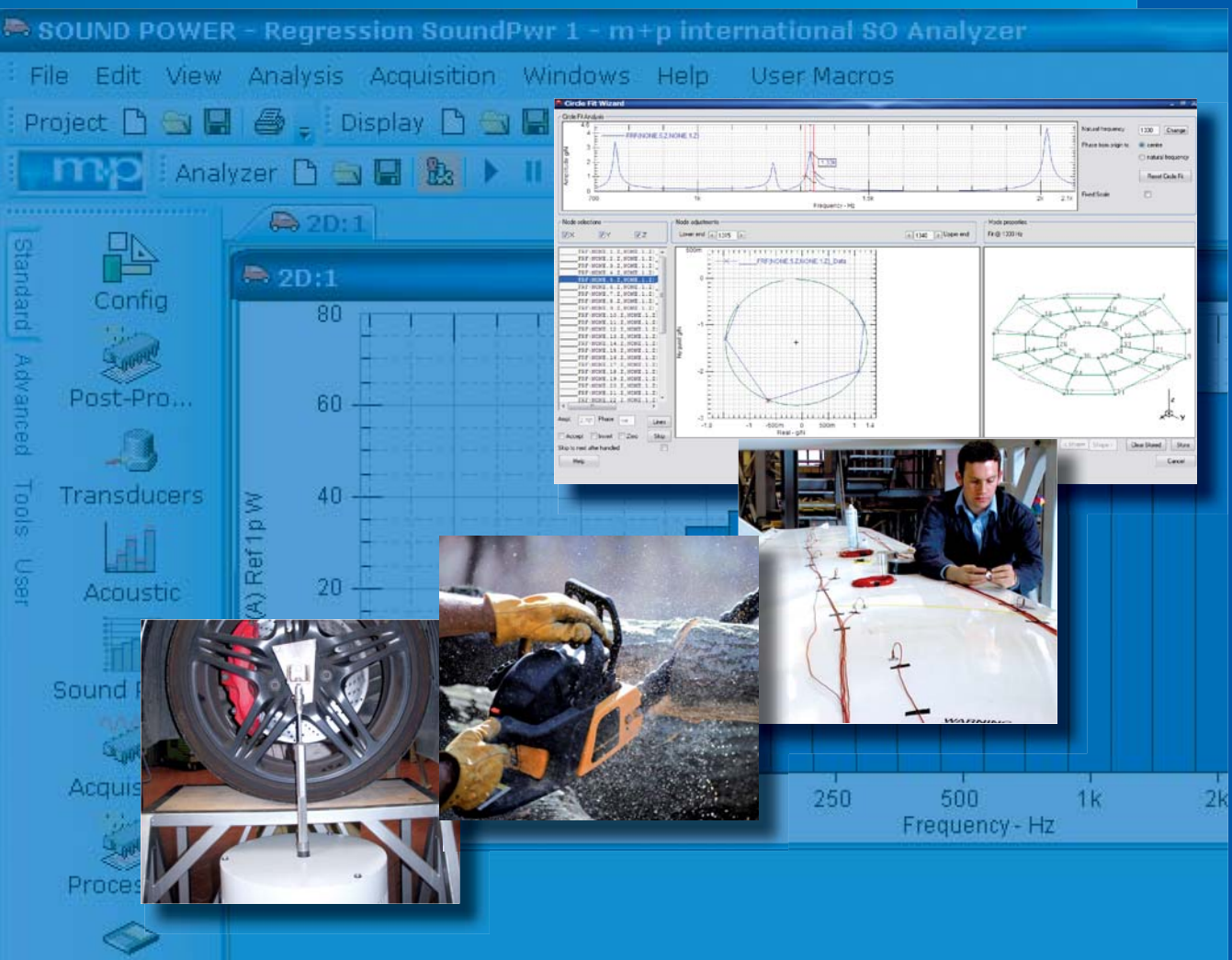
www.mpihome.com

SO Analyzer

Revision 4.1

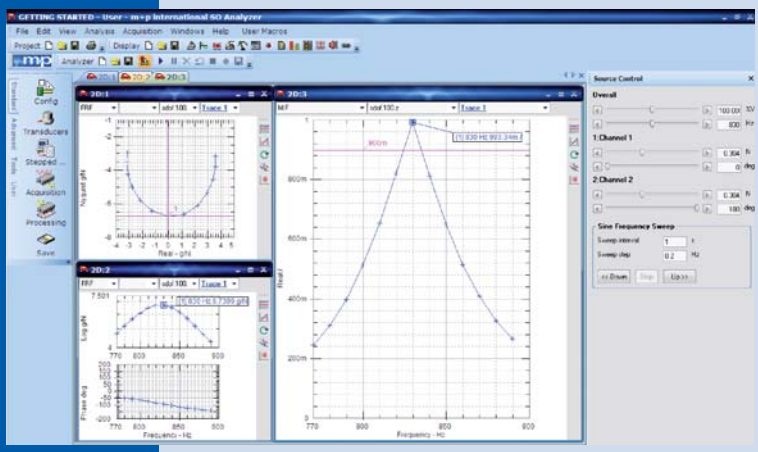
Update Note

- **Normal Mode Tuning (GVT)**
- **Mode Shape Validation Wizard with Circle Fit Editor**
- **Sound Power Wizard (ISO 374x)**
- **Tonality (ECMA 74)**
- **Additional National Instruments Card Support**
- **Windows 7 Support**



Normal Mode Tuning (GVT Ground Vibration Testing)

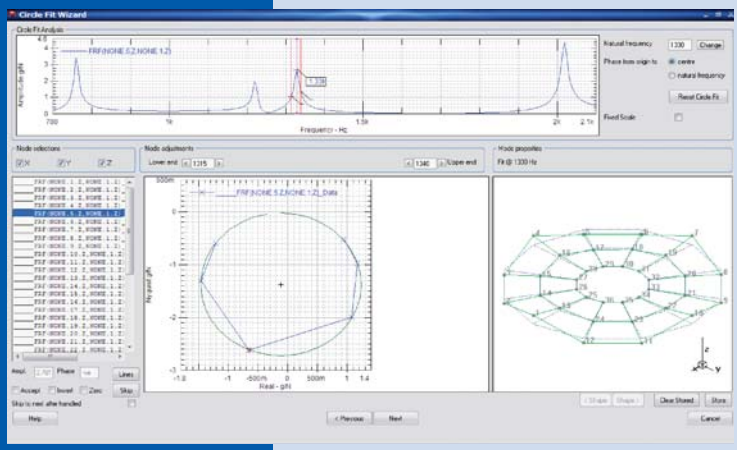
For the exacting modal test requirements of the aircraft and space industries m+p international have implemented “Normal Mode Tuning”. This method uses multi-point sine excitation at a strategic choice of the exciter locations with force control and tuning of the sinusoidal inputs. The tuning objective is to excite a “pure normal mode” which means the modal frequency is strongly excited and not influenced by adjacent modes or repeated roots at an identical frequency. This method ensures the most accurate estimate of the normal mode frequency and related damping values and is not limited by FFT resolution issues.



The real-time user interface shows progress towards the optimum normal mode frequency indicated by the MIF display and real-time mode shape analysis. This is augmented with Nyquist and Bode plots as the final high-resolution stepped sine sweep is completed.

Result data can then be processed by the appropriate curve fitter or the new validation wizard.

Mode Shape Validation Wizard with Circle Fit Editor

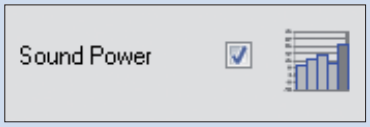


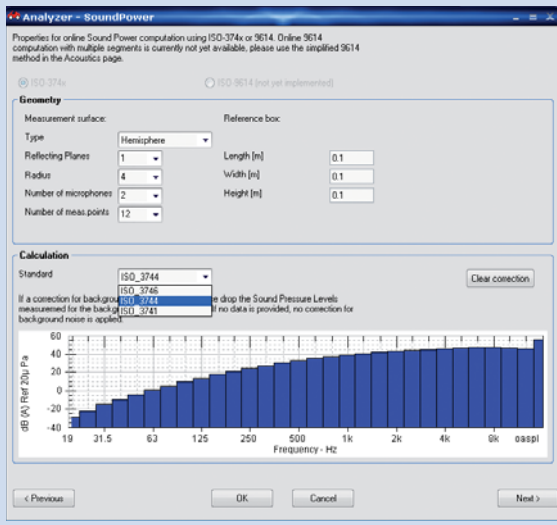
An ideal accompaniment to Normal Mode Tuning this method relies on the fact that a resonance plotted in the Argand plane (real versus imaginary components) results in a circle. In conjunction with the interactive mode shape animation it is an excellent tool for checking and optimizing each FRF measurement as is required for modal data validation in typical Normal Mode Tuning applications such as FE validation for flight clearance.

SO Analyzer’s modern interactive multi-display implementation of this traditional technique makes it quick and easy to review and validate data across even high channel counts.

Sound Power Wizard (ISO 374x)

Now part of the online measurement configuration a simple to use setup page covers all the different options available in the ISO 374x sound power standards. The user chooses the measurement space configuration and dimensions required and his choice of multiple or guided microphone positions.



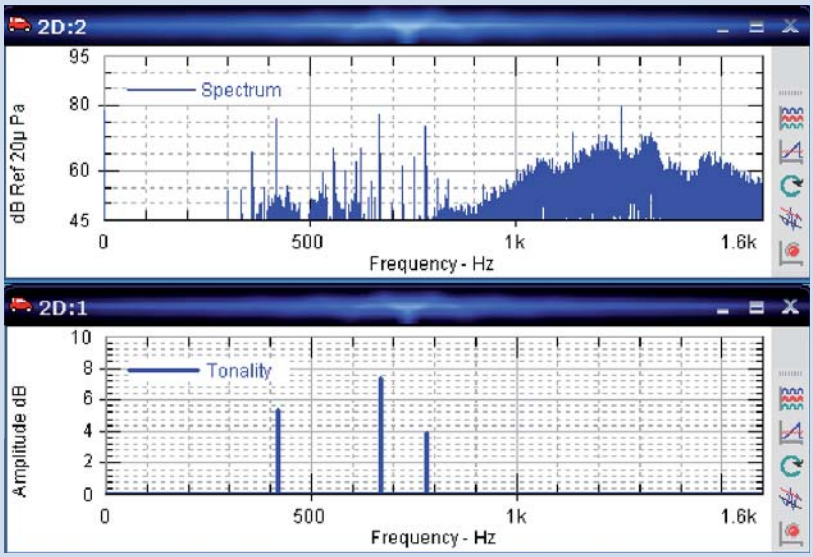


Update Note

Background noise corrections are optional and automatically validated to create a final Sound Power result when the measurement run is completed. Overall and detailed spectral results are made available for reporting.

Tonality (ECMA 74)

The ECMA 74 standard provides a method of characterizing the audible significance of tones within a sound pressure measurement and is a useful addition to the new Sound Power capability. Tones are automatically identified from within complex spectra and ranked in importance so providing a way of further improving the overall sound quality performance of your products.



Measurement Speed Improvements

Measurement initialisation was restructured for faster start-up and even faster real-time displays.

Enhanced Acoustic Time History Function

Acoustic time history functions now with higher resolution down to <1 ms increments for transient noise events.

Additional National Instruments Card Support

SO Analyzer Rev. 4.1 supports the following National Instruments cards:

- NI PXI-4220 strain
- NI 9217 RTD temperature
- NI PXIe-6358 multi-function data acquisition, 16 DI,1.25 MS/s/ch, 16 bits
- NI 9201 CompactDAQ, 8 ch, 500 kS/s
- NI 9205 CompactDAQ, 16 ch, 250 kS/s
- NI 9206 CompactDAQ, 32 ch, 250 kS/s
- NI 9225 CompactDAQ, 3 ch, 300 V_{rms}, 50 kS/s

Update Note

New Computation Functions

The following computation functions were added in SO Analyzer Rev. 4.1:
- FRF H1, H2 and Hv
- Normalized cross-correlation
- Normalized probability density
- 1/x in chart calculator and integral in Value Table
- VibControl Average, Mean and Peak filters mimicked in Sine Reduction

Windows 7 x86 and x64 Support

Hardware support is available for VibPilot, VTI Instruments and National Instruments on both.

User Data Location

Option for user to define separate user data area to simplify installs on highly secure systems.

Many Other New Features

SO Analyzer Revision 4.1 contains many more upgrades, for example:
- Damping calculation added to ODS wizard
- Color map of coherence overlaid on geometry model
- User editing of all modal parameter data
- Additional export options for all modal data
- Automatic window correction for damping
- Fractional octaves extended to 100 kHz for Ultrasonics
- VXI now allows multiple chassis on same PC (1 from n selection)
- Far East language support
- Licence checker verifies currently available options

This Update Note provides you with an overview of the most significant product enhancements of SO Analyzer Revision 4.1. 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 for your application, please let us know.

SO Analyzer 4.1 is available now with over 40 new features and many more general improvements for even greater efficiency and ease of use.
Please do not hesitate to contact us.

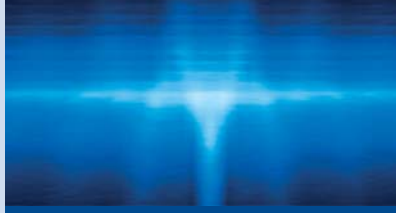
Germany
m+p international Mess- und Rechnertechnik GmbH
Phone: (+49) (0)511 856030
Fax: (+49) (0)511 8560310
sales.de@mpihome.com

United Kingdom
m+p international (UK) Ltd
Phone: (+44) (0)1420 521222
Fax: (+44) (0)1420 521223
sales.uk@mpihome.com

China
Beijing Representative Office of m+p international
Phone: (+86) 10 8283 8698
Fax: (+86) 10 8283 8998
sales.cn@mpihome.com

USA
m+p international, inc.
Phone: (+1) 973 239 3005
Fax: (+1) 973 239 2858
sales.na@mpihome.com

France
m+p international Sarl
Phone: (+33) (0)130 157874
Fax: (+33) (0)139 769627
sales.fr@mpihome.com



www.mpihome.com

Update Note

ISO 9001 CERTIFIED

m+p INTERNATIONAL

listens to customers ...

7088605-11/400