



## General Data Acquisition

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- Enhanced Shaker Qualification Application
- Simulated m+p Hardware Available
- Support of NI FieldDAQ Devices

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- Improved Single-Window ODS Tool
- Hammer Calibration Tool

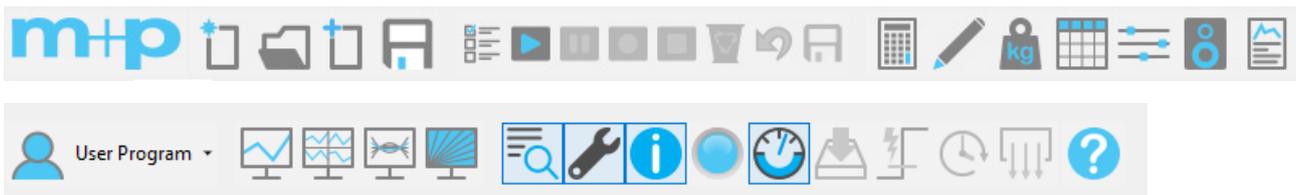
## Rotational Analysis

- Tachos Available with all Measurement Modes
- Synchronous Spectrum

# General Data Acquisition

## Redesigned User Interface

When you start m+p Analyzer Rev. 5.3 you will immediately notice the completely redesigned user interface with clear and simple icons. The layout is largely retained but streamlined where necessary, making our software even more intuitive and easy to use.



m+p Analyzer tool bar

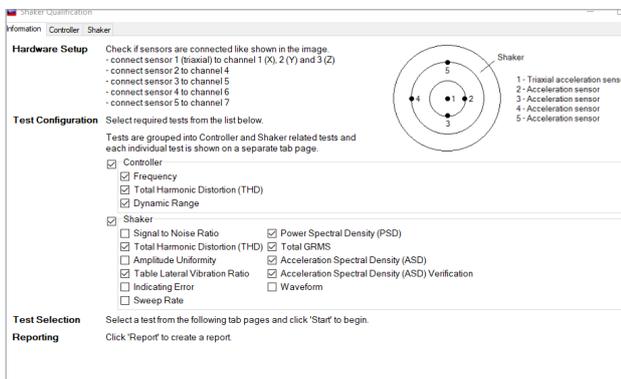
## Measurement Sequencing

Measurement Sequencing allows for acquiring measurement and/or throughput files in regular intervals over long time periods. It is a very convenient way to monitor, for example, long-term tests while tracking the alteration of frequency spectra at control points.

The function can also be used for an automatic restart of the measurement system. Applying a short interval will automatically restart the acquisition once the current run is completed. Combining measurement sequencing with triggered measurements enables a broad range of applications.

If you want to learn more about this topic, look for the Measurement Sequencing application note.

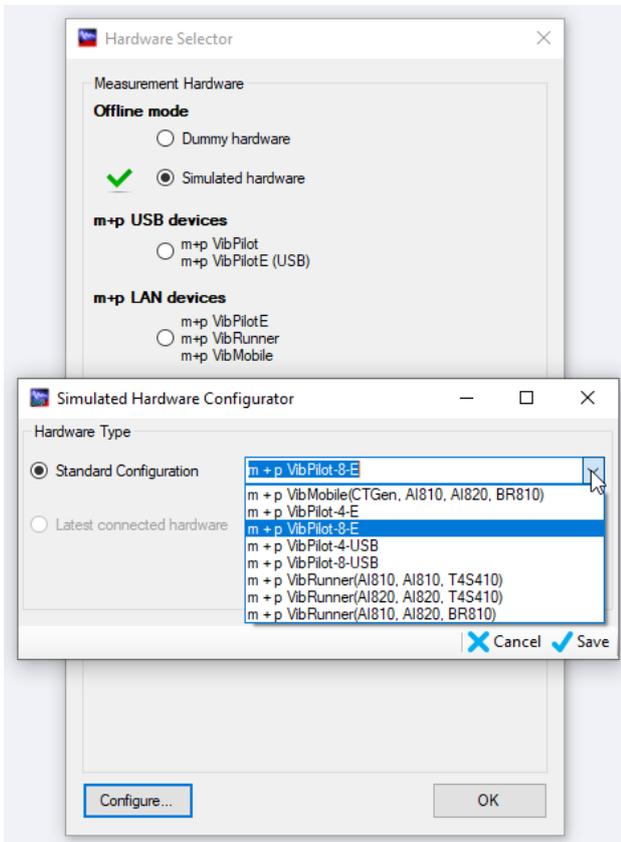
## Enhanced Shaker Qualification Application



Shaker Qualification application start window

Our proven Shaker Qualification application for acceptance tests and regular shaker qualification tests has been enhanced and expanded to cover both shaker and controller properties. The controller Total Harmonic Distortion, Frequency and Dynamic Range can be verified. Concerning the shaker, additional functions like Signal-to-Noise Ratio, Indicating Error, Sweep Rate, Total  $g_{RMS}$ , and ASD Verification are provided for investigation and evaluation. Finally, using the report generation function, you can monitor the control system's performance on a regular basis and detect degradation in a very early stage.

## Simulated m+p Hardware Available



Simulated hardware configuration

After popular demand, m+p Analyzer 5.3 now offers the m+p hardware simulation option. It enables you to preconfigure any m+p hardware configuration, set up a test and verify these settings in virtual test runs without physical connection to the real hardware.

To use this feature select “Simulated hardware” in the hardware configurator and choose the configuration to use.

Select “Latest connected hardware” to simulate the hardware that was recently connected to your computer.

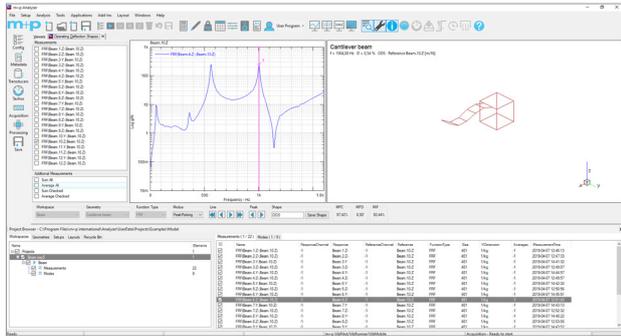
## Support of NI FieldDAQ Devices

m+p Analyzer supports the very rugged NI FieldDAQ devices FD-11603, FD-11613, FD-11634 and FD-11637. The water- and dust-resistant devices allow measurements in very harsh environments with dust, rain, sleet, snow or even mud.

This rounds off our National Instruments hardware support which currently comprises more than 70 different modules, from the small USB modules ranging up to high-frequency PXI modules.

## Modal Analysis

### Improved Single-Window ODS Tool



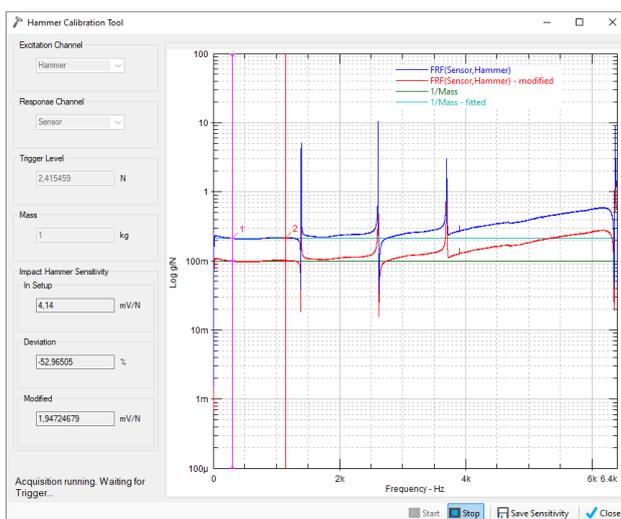
Single-window ODS tool

Operating deflection shapes are a great tool to analyze the dynamic properties of a structure under operating conditions. They can help engineers to find and solve structural and acoustic problems. The procedure relies on the structure's (machine's) typically "self-generated" vibrations during operation, thus the results are only valid for the given conditions as only structural modes excited under these conditions can be found. A different working condition (e.g. rotating speed) may result in totally different structural responses.

We transformed our ODS wizard into a more user-friendly single-window tool. All settings are made and modified within this window. Thus, you see at a glance which filters were set and can make adjustments and changes, if required.

The new ODS tool is completed by the ODS-FRF, which can be selected for storing on the Save page and will give phase referenced spectra. Behind the scenes, auto- and cross-correlation functions are used to generate the ODS-FRF from the amplitudes of the auto-powers and the phases of the cross-powers.

## Hammer Calibration Tool



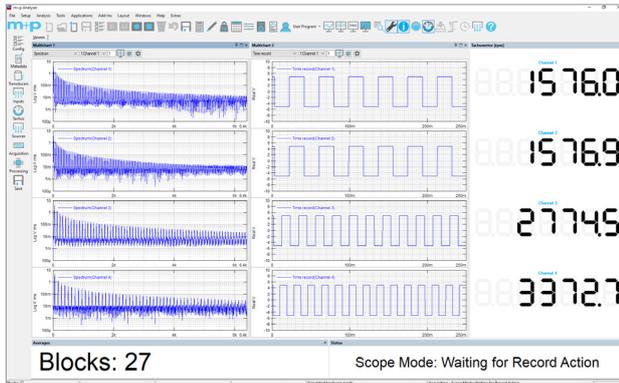
Calibrating the hammer's sensitivity

The Hammer Calibration tool provides a convenient way for determining the impact hammer's sensitivity and re-calibrating it.

Based on Newton's second law, by measuring the acceleration of a known mass, it is possible to calculate the exciting force and thus determine the hammer's transducer sensitivity. To run this test, a calibrated accelerometer is fixed to an oscillating suspended known mass, which is then excited by the impact hammer. From the acceleration of the mass, the exciting force and thus the force transducer's sensitivity can be calculated.

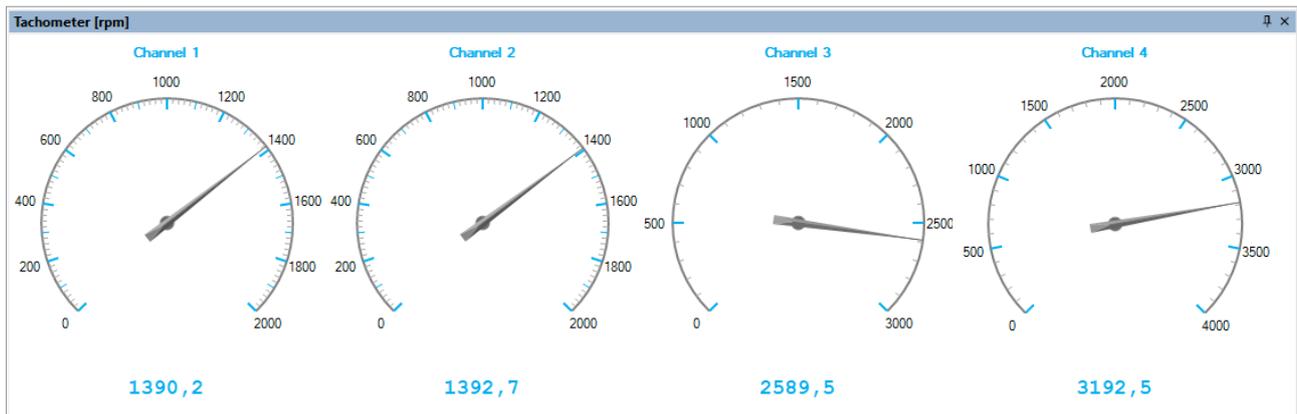
## Rotational Analysis

### Tachos Available with all Measurement Modes



Measurement with 4 tacho channels

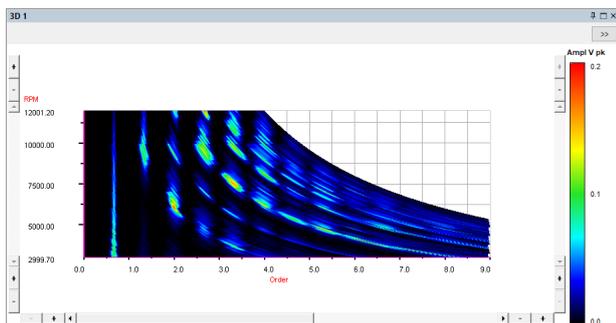
The new universal tacho function can be used with nearly all measurement modes. It allows acquiring tacho signals from analog input channels or dedicated hardware's tacho channels and recording the extracted RPMs to store them with recorded measurements. This procedure simplifies the investigation of issues resulting from or related to certain RPMs of a rotating machine. Even basic rotational analysis is possible using this functionality if order tracking is not required.



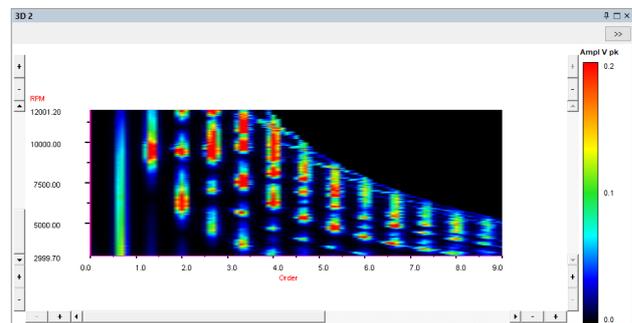
Four analog tacho displays

## Synchronous Spectrum

In Rotate and Sine Reduction modes, m+p Analyzer 5.3 provides the Synchronous Spectrum function, which computes order spectra in a more accurate way than is achieved using the common spectra with fixed frequency resolution. Resampling the time data based on the current RPM assures the highest quality of order results. This method guarantees that each order exactly matches a spectral line in the calculated spectrum and avoids smearing of order peaks. Each order's component will clearly show up in the synchronous spectrum.



Common order spectrum



Synchronous order spectrum

## Many Other New Features

A number of other enhancements include features such as:

- New add-ins:
  - FRF Synthesis
  - Modal Assurance Criterion
  - Complex Exponential Fit
  - Match Geometries
- Immediate mode in Rotate and Sine Reduction
- Source modes Pink Noise and Brown Noise (m+p hardware only)
- Save chart/animation/waterfall as png image
- Chart provides additional values RMS (overall), Total Harmonic Distortion and Crest Factor
- New function: Peak frequency over time
- Acoustic: D- and Z-weighting
- Window tool to adjust exponential window for impact tests
- Acoustic mode checks that the octave bands do not exceed the available frequency range
- Save residuals in MDOF and allow UNF export and import
- Improved and simplified usage of server licence client and service

This Update Note provides you with an overview of the most significant product modifications and enhancements in m+p Analyzer Revision 5.3. These together with many other smaller improvements make m+p Analyzer even more powerful and user-friendly.

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

**m+p Analyzer 5.3** is available now, providing you with even greater efficiency and ease of use.

Please do not hesitate to contact us for further information.



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