

Environmental Vibration Testing



Photo courtesy of NASA, USA

Whether for independent monitoring or just adding additional channels to an existing vibration controller, m+p Analyzer provides an ideal solution for measuring vibration and other responses during a shaker test or with shock machines:

Random Vibration

Power Spectral Density (PSD) data with single or multiple average results can be computed during the vibration test run. m+p Analyzer's "scope mode" allows pre-monitoring of the test start-up before averaging starts and averages can be manually reset if required during the process. Transfer functions, coherence and many other functions can be

easily included for a more thorough analysis of the test data. Sampling frequency and windowing can be selected for full compatibility with the vibration controller.

Swept Sine Vibration

m+p's expertise in vibration control technology has been embedded into m+p Analyzer to give accurate and fully compatible swept sine tracking results using the COLA output reference. Sampling, bandwidth and result estimator filters can all be selected to match the controller or indeed used to provide alternative higher resolution results for example. As with all test modes, time history recording can be run in parallel for post-processing or detailed sequence

YOUR BENEFITS

- Independent response channel monitoring for test data security
- Cost effective for addition of large number of monitoring channels
- Fully compatible results with vibration controller so easy to combine data
- Data reduction in all test modes for flexibility and integrity
- Throughput to disc recording at any sample frequency
- Powerful sequence of event analysis on largest of time history files
- Integrated modal analysis for on-the-spot mode shape animation
- Built-in m+p VibControl test report templates
- Utilize same hardware as m+p VibControl for improved hardware utilization
- Acceptance and qualification testing of shakers

of event analysis. Post-processing of both m+p VibControl and m+p Analyzer time history recordings provide the opportunity to re-analyze data runs with different settings such as filter bandwidth, etc. as well as doing sequence of event analysis of a premature test abort.

Classical Shock

For use with shaker tests, drop tables, pneumatic hammers or any other shock machines the classical shock capture wizard enables the full test specification to be entered and overlaid with the measurements. Control and response channels can be independently filtered in real time to avoid out-of-band noise and the result limit overlays are automatically adjusted to best fit the triggered shock waveform.

Shock Response Spectrum testing using an impact hammer



Photo courtesy of German Aerospace Center (DLR), Germany

Calculations are also done of pulse duration, peak amplitude, velocity change and within limits so that these data and their pass/fail criteria are displayed for each pulse immediately on capture. Special report templates that handle control and triax response channels automatically make for rapid report generation.

Shock Response Spectrum

Online and offline wizards are available to cover all aspects of capturing and reporting SRS data. These can be used with shaker or shock machine testing and include limit overlays for instant test assessment and report generation. As well as real-time low pass filters, the online wizard computes the standard maximax results whereas the offline wizard computes all intermediate SRS functions as well as displaying the actual time response waveforms at each frequency for the most detailed of analyses.

Throughput to Disc Recording and Post-Processing

All test modes allow in-parallel throughput to disc recording so that the raw sample data is available for post-test analysis. This is particularly useful for sequence of event analysis if the vibration test should abort mid-test. Multi-gigabyte file sizes can be quickly reviewed and zoomed for detailed cross channel analysis. Peak time histories can be computed and kurtosis time history provides a more sensitive identification of transient events in the data. Furthermore all data reduction test modes can be re-run on the recorded data for more detailed analysis using alternative settings.

Shaker Qualification

m+p Analyzer provides an advanced software tool for acceptance tests and regular qualification tests of shakers. Total harmonic distortion, amplitude uniformity, table lateral vibration ratio and other relevant measures are evaluated to verify functionality and performance data and to minimize the risks of downtime and associated costs.

m+p international

Founded in Hannover, Germany in 1980, m+p international develops and manufactures test and measurement systems for vibration control, dynamic signal analysis, data acquisition, process monitoring and test stand engineering. Our product reputation and broad experience coupled with valuable user feedback have led to significant market share in numerous key industries worldwide.

The company has its headquarters in Hannover, Germany with sales/marketing subsidiaries in New Jersey (USA), England, France and China, along with representatives and agents in many countries.

Learn more on the full range of m+p international products and services and their applications. Select the m+p literature library on our website:
www.mpihome.com/en/literature-library.html

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