



PolyWave Post-Processing Software Suite

Advancing the Analysis of Vibration Test Data

Product Brochure



PolyWave - The scalable software package for comprehensive analysis of vibration test data

The seamless post-processing with PolyWave makes your studies with Polytec laser Doppler vibrometers more efficient than ever.

PolyWave is comprised of four application specific modules:



EMA PRO:

Experimental Modal Analysis



OMA:

Operational Modal Analysis which adds to EMA PRO



ORDER PRO:

Order Analysis



REPORT PRO:

Automated Test Report Generation (enhances all modules)



■ Keep track of your raw data with the SIGNAL VIEWER

■ Keep an eye on dynamics: ODS Analysis in time and frequency domain¹

■ Convincing reports with exported graphics and animations

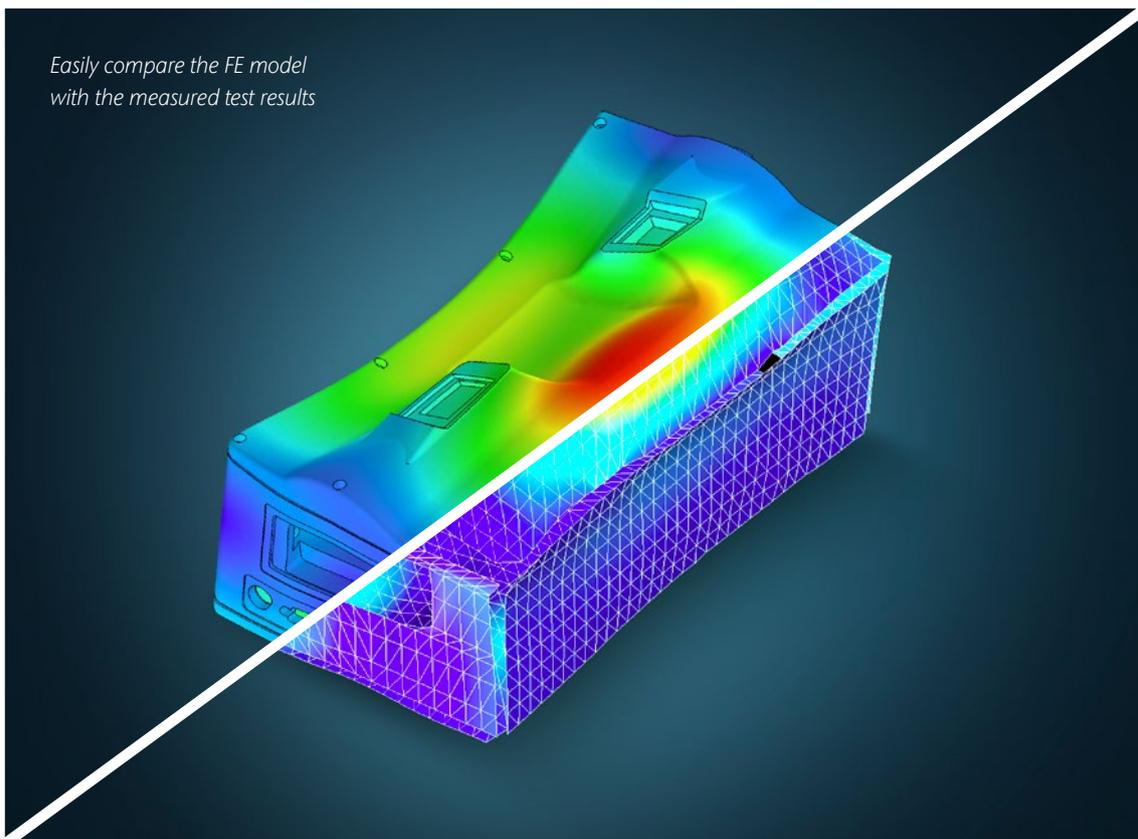
¹ requires EMA PRO or OMA

Concentrate on Essentials

PolyWave has only one focus: your data. Any data set content is already analyzed while loading and PolyWave offers just the matching post-processing modules. This feature alone helps give an inexperienced or first-time user the confidence of an expert and the skills to exclude poor data that can adversely affect subsequent work. It is reassuring that by immediately post-processing data, the user will know that all settings, including excitation values and run-up times, were chosen correctly the first time.

Tuned to maximum performance

PolyWave is optimized for processing the large data sets that make scanning laser vibrometers (PSV, MSA) the superior acquisition system for experimental modal analysis. The software is designed to allow thousands of transfer functions to be analyzed. In addition, PolyWave includes advanced algorithms that are not included in Polytec's basic measurement and analysis software. These powerful algorithms are automatically matched to the content of the test data file when a PolyWave module is started. However, for the expert, all parameters are still accessible for direct optimization.



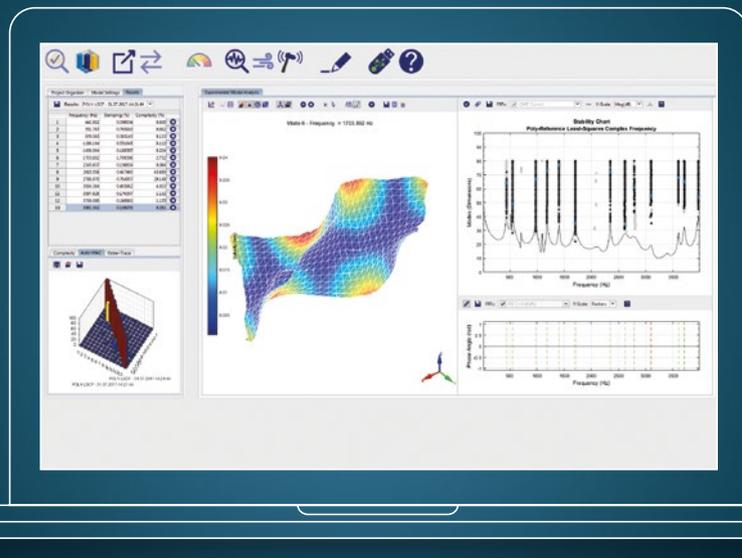
If properly processed, the high spatial resolution possible with a scanning vibrometer leads to an accurate and confident validation of the associated FE models. Instead of validating just a few select degrees of freedom, a PSV Scanning Vibrometer can retrieve the measurement point definition directly from the CAE data. As a result, test data are generated at the nodal points and can result in ten thousand or more FRF's. PolyWave is uniquely designed to assure that this demanding post-processing task proceeds smoothly and quickly.

Modules



EMA PRO

EMA PRO is an intelligent software that provides algorithms for SISO, SIMO, MISO and MIMO data. The included Result Viewer bridges the gap to Finite Element Analysis (FEA) by allowing visual and mathematical comparison with calculated modes.



EMA PRO desktop



Highlights

- Automatic module selection based upon file content
- Become an expert: automatic parametrization based upon file content.
- Confidence in the results based on dedicated quality indicators
- Segmental analysis covers high modal density situations

Experimental Modal Analysis

EMA PRO provides the tools necessary for extracting modal parameters from experimental modal tests. Interfaces and algorithms are optimized for the large data files inherent in using Scanning Vibrometers. Thousands of FRF's can be imported and analyzed without any stability issues.

Consequently, meaningful Eigen vectors, mode shapes and modal damping parameters can be extracted from the operational deflection shapes. Even at high modal density, these parameters can be ascertained by using segmental analysis. The use of multiple quality indicators provides assurance that the results are consistent.

- Auto-MAC
- Complexity plot
- Phase diagram
- Order trace
- Stability chart
- Synthesized FRF



OMA

Operational Modal Analysis

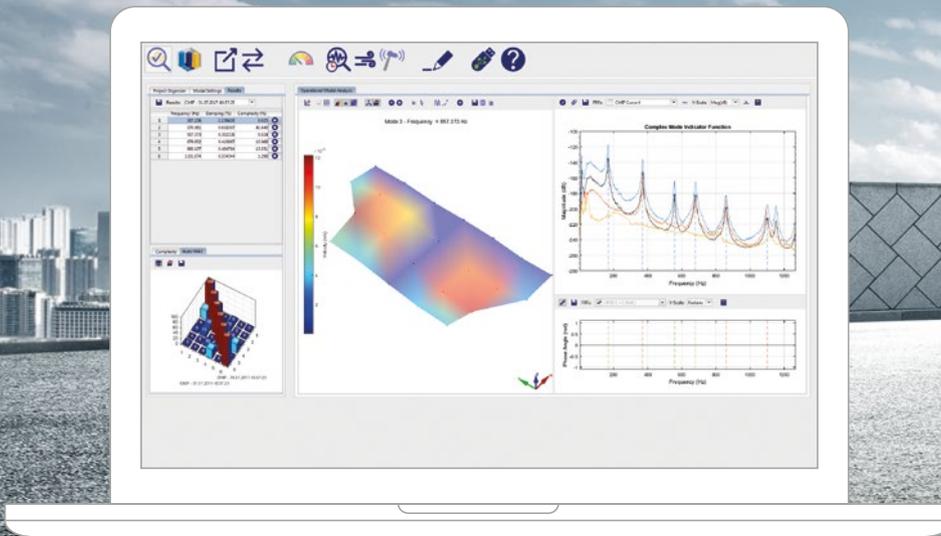
The OMA add-on module provides tools for the analysis of structures excited by ambient vibration where the input force is unknown, e.g. buildings, bridges or other structures under wind excitation, or engines and drives excited through normal operation. PolyWave automatically selects this analysis module when the imported file content is consistent with OMA acquisition. For modal parameter extraction, time based algorithms are integrated. PolyWave automatically offers the best matching algorithm for a specific test file.

OMA analysis of vortex induced membrane vibration



Highlights

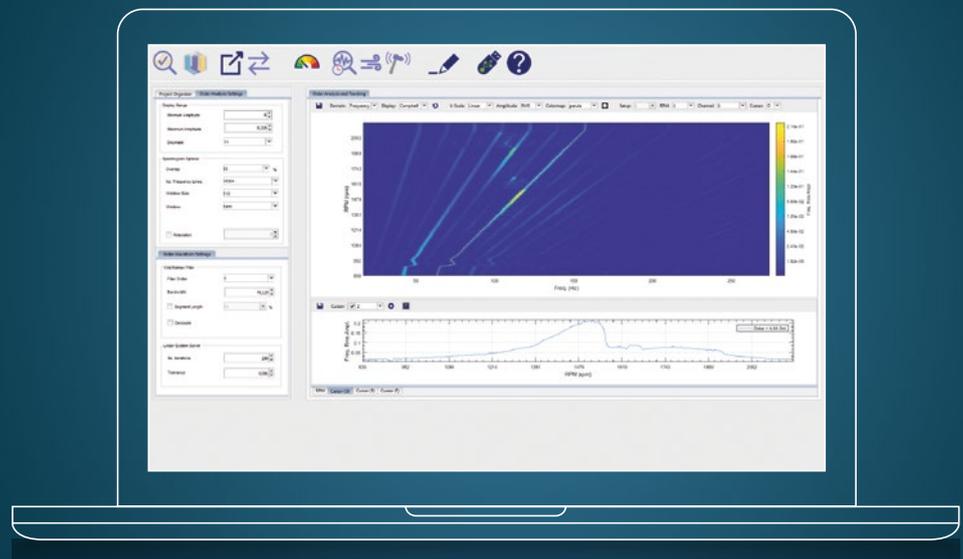
- Automatic module selection based upon file content
- Become an expert: automatic parametrization based upon file content.
- Complex Mode Indicator Functions (CMIF) identify modes during module start-up
- Segmental analysis covers high modal density situations





ORDER PRO

*ORDER PRO
module showing
Campbell
diagram with
order cursor*



Highlights

- Automatic module selection based upon file content
- Become an expert: automatic parametrization based upon file content
- Easy-to-handle cursors for resonance identification
- Order spectrum and Order tracking

Order Analysis

ORDER PRO provides an analysis of structural resonances for tests taken at different rotational speeds. It offers all the necessary tools for a comprehensive analysis and visualization of such data including: Campbell diagrams waterfall diagrams, both in frequency domain and order domain, as well as cursor-specific functions that allow for a quick analysis by positioning the cursor on critical plot elements. Data sets from one or more response channels can be analyzed. The module CONVERT PRO converts pulse-based speed sensor output into RPM signals that allow for direct analysis of run-up tests.



REPORT PRO

Automated Report Generation

REPORT PRO is designed to quickly and automatically generate meaningful reports from post-processed test data. Three report formats are supported including: Microsoft® PowerPoint®, Microsoft® Word® and PDF.



Highlights

- Meaningful reports in an instant
- Incorporate custom templates and company logo
- Easily define what's relevant for the audience
- Output in Microsoft® Word®, Microsoft® PowerPoint® (including animated GIF) or PDF

Professional presentation (Microsoft® PowerPoint®) generated by REPORT PRO

System Requirements

CPU	Intel® Core™ i7, min. 2.0 GHz
RAM	8 GB, 16 GB recommended
HDD	min. 4 GB
Graphics board	minimum OpenGL capable chips (50 CUDA cores, 1024 MB DDR3) Recommended is NVIDIA Geforce GTX 960 or comparable
Display	1920x1080 (HD) recommended
USB 2.0	at least one port (dongle)
Operating System	Windows® 7 64Bit Pro, 8.1 Pro, 10 Pro
File interface for VIB, UFF and SVD, PVD files	Polytec File Access installed
Using REPORT PRO	Installed Microsoft® Office Package or matching Viewer software (from 2003 version onwards)

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Supported Data File Formats

Import:

- SVD (Polytec Scanning Vibrometer)
- PDV (Polytec Single Point Vibrometer / VibSoft)
- UNV (Universal File Format)
- VIB (PolyWave Exchange Format)

Export:

- UNV (Universal File Format)
- VIB (PolyWave Exchange Format)
- CSV (Text file for modal analysis results)
- AVI movies, animated GIF



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