OPERATIONAL MODAL ANALYSIS

Operational Modal Analysis is based on measuring only the output of a structure and using the ambient and operating forces as unmeasured input. It is used instead of traditional mobility-based modal analysis for accurate modal identification under actual operating conditions, and in situations where it is difficult or impossible to artificially excite the structure.
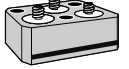
Many civil engineering and mechanical structures are difficult to excite artificially due to their physical size, shape or location. Civil engineering structures are, in addition, loaded by ambient forces, e.g., waves (offshore structures), wind (buildings) or traffic (bridges), and operating machinery exhibits self-generated vibrations. The forces required for Operational Modal Analysis would, in traditional modal analysis, provide erroneous results.

For aircraft, vehicles, and operating machinery there is a need to determine real-life modal parameters using actual operating conditions. As Operational Modal Analysis can be performed in-situ during normal operation, setup time can be reduced and costly downtime eliminated.

Operational Modal Analysis systems from Brüel & Kjær are scalable and easy to upgrade in hardware and software.

The Operational Modal Analysis software is available in three versions – Pro, Standard and Light. The versions differ only in the number of techniques available.

Calibrator

4294
Calibration Exciter

DV 0460

DV 0459
Calibration Clips

Miscellaneous

UA1473 Set of 100 Swivel Bases
UA1478 Set of 100 Swivel Bases

UA1480
Spirit Level

YJ 0216
Beeswax

Uniaxial Accelerometers

IEPE TEDS   4507B-00X

PE   4393

IEPE   4394

Triaxial Accelerometers

IEPE TEDS   4506B-00X

PE   4326A

IEPE TEDS   66A11
                66A12

PE to IEPE Converter 2647A, B, C

020234

HARDWARE ACCESSORIES

UA 1407, UA 1408	Set of 100 Mounting Clips	**UA 1216**	Set of 10 Insulation Studs, M3–M3
UA 1563, UA 1564	Set of 5 High Temp. Mounting Clips	**UA 1215**	Set of 10 Insulation Studs, 10/32–10/32
UA 1077	Set of 5 Mounting Magnets, M3	**WA 0224**	Set of 5 Insulating Mechanical Filters, M3–M3
UA 0642	Set of 5 Mounting Magnets, 10/32	**UA 0553**	Set of 5 Insulating Mechanical Filters, 0/32–10/32

TYPE 3560 C-S33

Operational Modal Analysis Light (7 In)

3560 C
7705
7753
7760 E
7533
3032-A
7770-N7

Entry-level system based on the efficient and intuitive Frequency Domain Decomposition (FDD) technique for quick and easy identification of natural frequencies and mode shapes. Ideal for small-scale and basic modal testing not requiring damping estimates. More than 7 channels can easily be measured using multiple data sets with roving transducers.

* One year SW maintenance
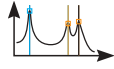
Modal Test Consultant™ Type 7753 is used for geometry creation, geometry-driven data acquisition, pre-analysis and transfer of data to Operational Modal Analysis Type 7760 for post-analysis
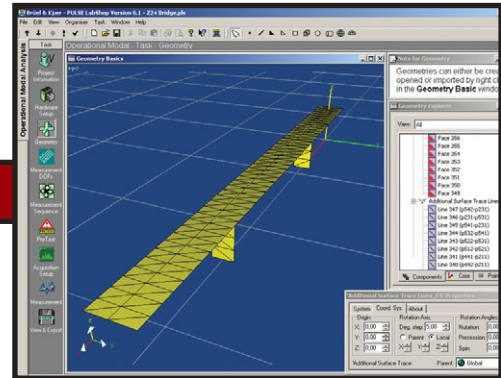

TYPE 3560 D-S15

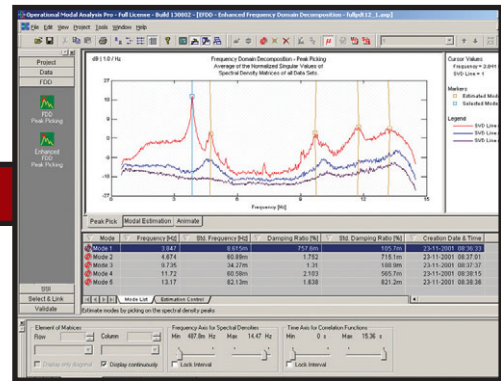### Operational Modal Analysis Std. (12 In)

3560 D
7705
7753
7760 C
7536
2 × 3032-A
7770-N12

Standard system including the two frequency-domain techniques FDD and Enhanced FDD (EFDD). In addition to identification of mode shapes, the EFFD technique determines damping and gives an improved natural frequency estimation with only a minimum of additional user interaction. Increased test productivity can be obtained by simultaneous measurement in up to 12 channels.

* One year SW maintenance
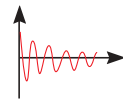
The peak-picking method used in both the FDD and EFDD techniques lets you identify a mode by using a snap-to-peak facility. The identified modes can be selected and immediately animated


## TYPE 3560 E-S7

Operational Modal Analysis Pro (96 In)

2 × 3560 E
16 × 3032 B
7701
7705
7753
7760 A
2 × 7536
7770-N16

A state-of-the-art system with the most powerful and accurate techniques available today. It includes two frequency-domain techniques (FDD and EFDD) and three time-domain techniques based on Stochastic Subspace Identification (SSI). Simultaneous measurement in up to 96 channels makes the system ideal for advanced large-scaled modal testing.

* One year SW maintenance
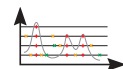
A number of validation tools such as overlaid, error and side-by-side animation, and MAC plots and tables are available for comparison of modes from different projects and techniques
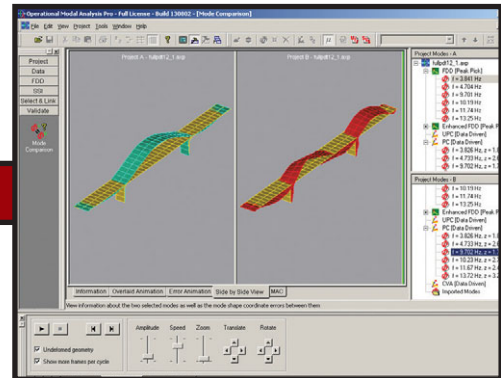
SOFTWARE ACCESSORIES		**SOFTWARE UPGRADING**	**7760**	Operational Modal Analysis
7701	Data Recorder	**ACCESSORIES**		Upgrade to Standard or Pro
7754	ME'scopeVES™	**7700-Nnn** Noise and Vibration Analysis	**BZ 5457**	Upgrade from Modal Test
7764	MIMO Analysis	Channel Licenses		Consultant™ to ODS Test
		7770-Nnn FFT Analysis Channel		Consultant
		Licenses		
		7707-N Unlimited Analysis Engine		