

# PRODUCT DATA

**Structural Dynamic Test Consultants  
Modal Test Consultant — Type 7753**

**Operating Deflection Shapes Test Consultant — Type 7765**



Modal Test Consultant™ (MTC) and Operating Deflection Shapes Test Consultant™ (ODS TC) are PULSE™ applications developed to simplify and dramatically reduce the time required to perform structural dynamic measurements. Together they are referred to as **Structural Dynamic Test Consultants**.

MTC supports both mobility-based modal analysis and Operational Modal Analysis (OMA). ODS TC is used when determining the vibration patterns of structures under operating conditions, and supports setup and measurements under stationary, or almost stationary conditions, using frequency analysis or order analysis (tracking).

The Structural Dynamic Test Consultants utilise the PULSE multi-analysis platform. They are graphically driven and easily controlled, linking the measurement directly to the on-screen test object geometry. These features, together with highly effective tools for setup, measurement and validation, make testing fast and reliable. The data generated (time, spectra, geometry and DOF information) can then be used directly by your chosen post-processing package.

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**7753, 7765**

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# Structural Dynamic Test Consultants

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- USES**
- Integrates PULSE™ and a PC-based modal analysis/ODS post-processing package into a streamlined testing solution
  - Geometry-driven measurement setup for data acquisition and analysis in structural dynamics related measurements
  - Export of geometry, measurement data and Degrees of Freedom (DOF) information (consisting of measurement points and directions), to structural dynamics post-processing packages.
  - Part of complete solutions available from Brüel & Kjær including:
    - High-quality modal measurement transducers and accessories
    - Conditioning, measurement and analysis using the PULSE multi-analyzer platform
    - A range of modal analysis/ODS post-processing packages
- FEATURES**
- Provides a dedicated user-interface in PULSE, rather than in the modal analysis/ODS post-processing software. This enables you to choose the most appropriate post-processing software for your particular Test Consultant
  - Task orientated user interface
  - Easy-to-use geometry drawing tools
  - Import of geometry via DXF and UFF file formats
  - Graphically driven environment for measurement setup
  - Automated measurement sequence generation
  - Audible status and visual notification during setup and measurement
  - Automated bookkeeping of DOFs
  - Runs under Windows NT®, Windows® 2000 and Windows® XP operating systems

## Introduction

In performing a structural dynamics test and analysis, it is normal for up to 80% of the total time to be used for measurement setup and data acquisition. The remaining 20% is for post-processing with a structural dynamics post-processing package such as ME'scopeVES™.

Brüel & Kjær has focused on making significant savings on the setup and data acquisition time. Using Structural Dynamic Test Consultants (SDTCs), consisting of Modal and ODS Test Consultants, Brüel & Kjær/ENDEVCO modal transducers, together with a range of accessories, time can be saved in every area of the measurement process.

The SDTCs work with PULSE to provide a dedicated measurement environment for structural dynamic measurements. They guide you through the measurement process in simple steps, giving you an intuitive graphical interface that links setup and DOF information to the on-screen test object geometry. A PULSE system overview has been provided for reference in Fig. 1.

## Interface and Layout

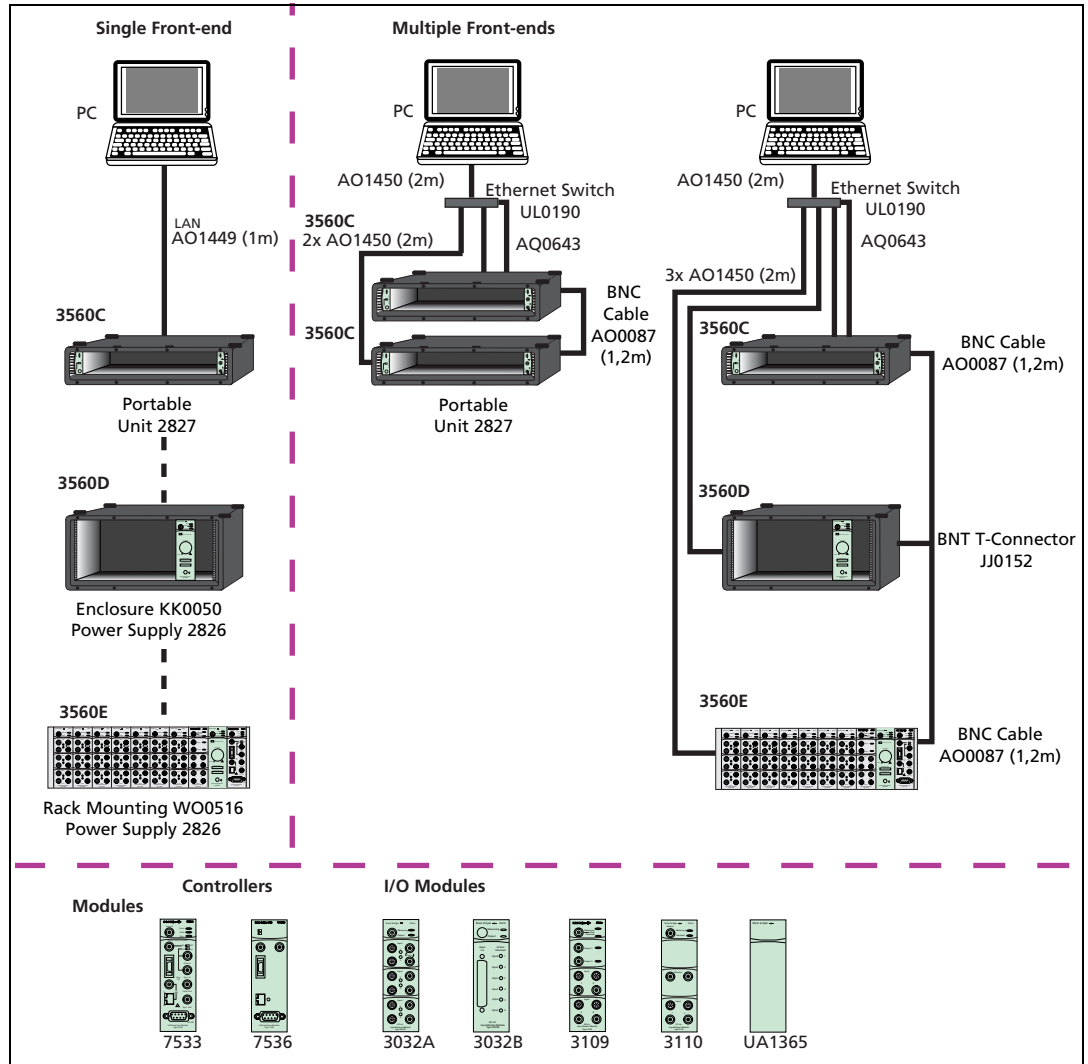
The SDTCs have user interfaces which are generic Windows® interfaces, each equipped with a task bar down the left-hand side of the screen. Being native Windows®-based software, windows can be dragged, scaled, minimised, opened or closed with the mouse. A typical example, showing a hammer measurement, has been provided in Fig. 5.

The Task Bar takes the form of one or more menus (task groups) in the left-hand column. Each menu has a series of tasks associated with it. These are activated from icons in

the task bar. A basic set of tasks comes with the templates, which should not be altered. However, additional tasks can be created, rearranged or removed giving you the option of customising the measurement sequence and removing unnecessary tasks when, for example, repeated measurements are being made on the same item (Fig. 5).

These features make the measurement process both linear and intuitive. By simply working your way through associated tasks, you automatically perform all the necessary setup and measurement tasks. This is a bonus for new and infrequent users as they can quickly acquaint themselves with the system. Experienced users will appreciate the option of customising the task bar so that they only have those tasks visible that are specific to their particular measurement. They will also appreciate the tabular overviews of the hardware setup, calibration information and excellent DOF management features.

**Fig. 1**  
IDA<sup>e</sup>-based PULSE  
system overview



## Tasks

### General

This section describes the measurement tasks required during structural dynamic measurements, (common to both MTC and ODS TC). The tasks are listed in a logical sequence, as they would appear on the task bar, see Table 1. The following sections highlight the features **specific** to the MTC and ODS TC applications. The rest of the information in

this Product Data sheet is applicable to both Test Consultants, unless otherwise specified.

**Table1** Common tasks available in the Structural Dynamic Test Consultants

Tasks	MTC				ODS TC	
	Hammer Measurements	Shaker Measurements	OMA Measurements	OMA Recorder Measurements	ODS-FFT	ODS -FFT & Tacho -Order
Project Information	X	X	X	X	X	X
Hardware Setup	X	X	X	X	X	X
Geometry	X	X	X	X	X	X
Measurement Points	X	X	X	X	X	X
Measurement Sequence	X	X	X	X	X	X
Accelerometer Calibration	X	X	X	X	X	X
Analyzer Setup	X	X			X	X
Acquisition Setup			X	X		
Measurement	X	X	X		X	X

*Project Information*

The Project Information task is the first task encountered in the default template for the SDTCs, it is where you choose the method of measurement. In the case of MTC, you can choose between fixed or roving Hammer, fixed or roving Shaker or Operational Modal Analysis. In ODS TC, you can choose between using FFT Analyzer or Order Analyzer. Each task layout has an associated PULSE TaskNote where notes and even photographs can be added. This information remains in the PULSE project for future use.

*Hardware Setup*

The hardware, including transducers, is set up and displayed in tabular form, using a standard PULSE Hardware Setup table. This table gives you an overview of the hardware available and holds information on the front-end being used (frame type, module number, channel number, etc.) and data concerning the transducers. It also provides the option of editing hardware properties across several channels simultaneously.

If you are using TEDS (Transducer Electronic Data Sheet) transducers, the hardware table is automatically updated. If the transducers used do not have TEDS fitted, the hardware table can be updated manually.

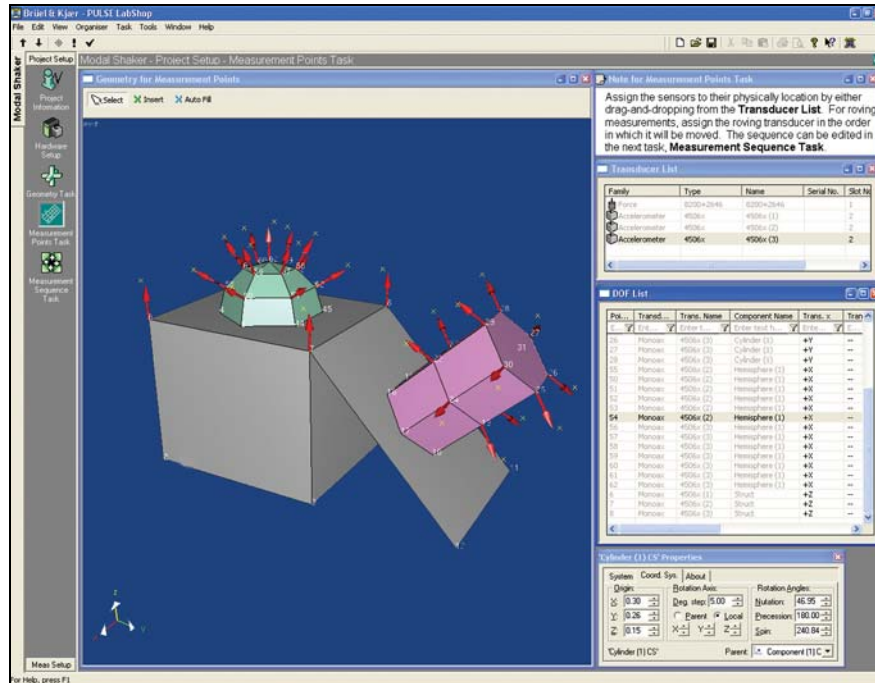
The hardware setup table is linked to the PULSE transducer database making manual updating quick and easy.

*Geometry*

Clicking on the geometry icon brings you into the geometry setup screen, refer to Fig. 2. You are provided with a compact and intuitive drawing package that allows you to create 3D models of your test object.

You can work with points, lines, surfaces or basic shapes (e.g., boxes, cylinders and hemispheres) that you edit and combine to rapidly build up the test object geometry. More complex geometry objects can be imported from CAD software packages in UFF or DXF format. Once inside the Geometry Task tool, the geometry is parametric. This means it has structure, physical properties and values that the user can change, i.e. diameter of a cylinder or dimensions of a box. The geometry updates itself, automatically adjusting to incorporate new dimensions.

**Fig. 2**  
 Geometry is created using "Geometry Task" followed by DOF definition using "Measurement Points/DOFs Task"



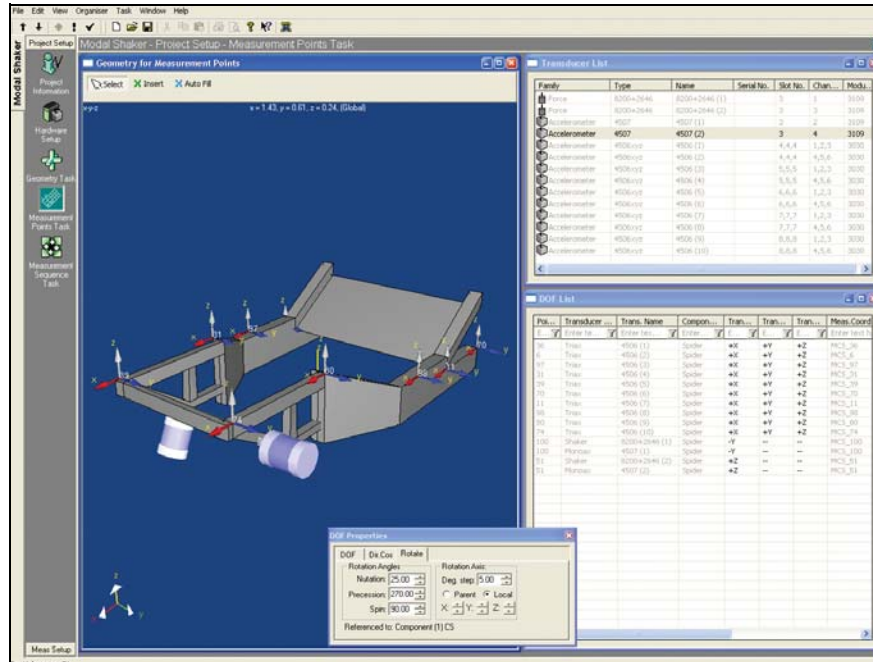
### Measurement Points/DOFs

Measurement Degrees of Freedom (DOFs) are added to the test object geometry by pointing and clicking with the mouse. It is also possible to automatically add selected transducers to all points, depending on the measurement method, using the Autofill feature. The measurement points relate to specific transducers and can be force transducers (excitation) or accelerometers (response). You select the transducer you wish to mount from a list that contains the transducers you have chosen for the measurement, which have been set up in the Hardware Setup table. This makes the process very intuitive because you do the same on screen as you do on the physical test object. The transducers are shown as icons on the figure and skewed angles are supported (see Fig. 2 and Fig. 3).

Three coordinate systems are used, cartesian, spherical and cylindrical. When a transducer is added to a part of the test object geometry, the coordinate system of that particular transducer automatically assumes the coordinate system of that part, whether it be cartesian, spherical or cylindrical.

Fig. 3 shows a typical screenshot of a Measurement Point/DOFs Task used for performing MIMO testing on a car body, with 2 shakers and 10 triaxial accelerometers.

**Fig. 3**  
**Example of multi-shaker measurement on a car frame also illustrating the use of surfaces**



### Measurement Sequence

This task automatically creates a measurement sequence based on one of two methods:

- According to the sequence transducers have been manually assigned to the DOFs, by the user
- Automatically, according to measurement point numbering

It takes the measurement method, selected in the Project Information Task, into account.

### Accelerometer Calibration

This task uses the Calibration Master in PULSE for straightforward accelerometer calibration.

### Analyzer/Acquisition Setup

The Analyzer task is used to set the parameters of the analyzers. In MTC, FFT parameters, such as frequency span, number of lines, triggering and averaging mode can be inserted here. In ODS TC, the user also has a choice between FFT or Order analyzers, depending on the type of measurement required.

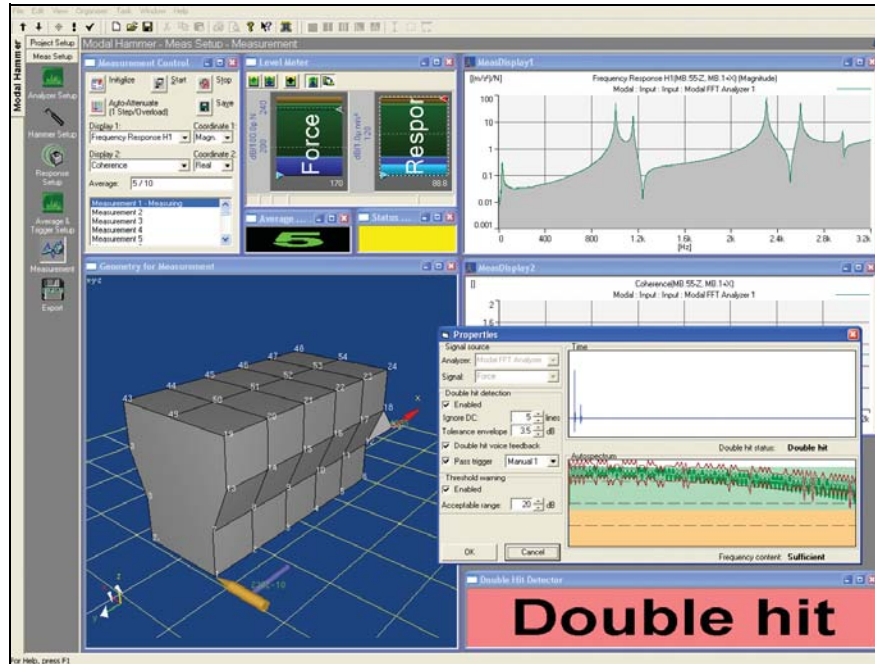
The Acquisition task is used with OMA to set up the time capture parameters and data recorders, if used.

### Measurement

When making measurements using SDTCs, the first measurement positions are automatically highlighted on the object geometry. The status of the analyzer is shown and, for the individual channels, you have on-screen indications of level, including potential overload. As the test object may be some distance from the PC, the SDTCs provide audible feedback such as “overload” or “triggered”, along with a scalable channel status monitor and level meter.

Using a hammer test as an example, (see Fig. 4), the Measurement task uses icons on the test object geometry to indicate where you need to excite the structure and where you need to measure the response for the particular measurement you are making. On saving the measurement data, the transducers automatically move on to the next measurement positions showing you, once again, where to excite and where to measure. If during the measurement, multiple or ‘double’ hits of the hammer are detected, the system can be set up so that a warning is generated. The system can be set up to automatically reject measurements where double hits have been detected.

**Fig. 4**  
 Typical  
 measurement task  
 display for hammer  
 testing



At the end of the measurement in the SDTCs, you export your correctly DOF labelled functions and geometry to the chosen post-processing package. A variety of PULSE tools can be used alongside the tools provided by the SDTCs, for example, Level Meter and Display Manager.

The SDTCs enable you to perform structural dynamic measurements as you wish by allowing you to choose the sequence in which you perform the measurement tasks. If required, the tasks can be rearranged<sup>1</sup> or, in the case of ‘individualised’ tasks, added and deleted. You can also choose the post-processing package you need for your structural dynamic analysis. Users of existing structural dynamics packages will be able to use the benefits of PULSE and SDTCs while continuing to use their existing packages. Those new to structural dynamic testing will appreciate the guidance provided by the SDTCs and the freedom to choose a structural dynamic post-processing package to suit their needs. What all users will benefit from is the speed with which structural dynamic tests can now be set up and executed.

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## Modal Test Consultant – Type 7753

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- USES** Supports mobility-based modal analysis and Operational Modal Analysis (OMA)
- FEATURES** Complete guidance through all stages of hammer, shaker and OMA measurements  
 Force calibration, ensuring correct mobility measurements  
 Automatic double-hit detection and rejection  
 Supports multiple shaker excitation via Multiple-Input Multiple-Output Analysis (MIMO)

### Introduction

Modal Test Consultant guides you through the measurement process in simple steps, giving you an intuitive graphical interface that links setup and DOF information to the on-screen test object geometry.

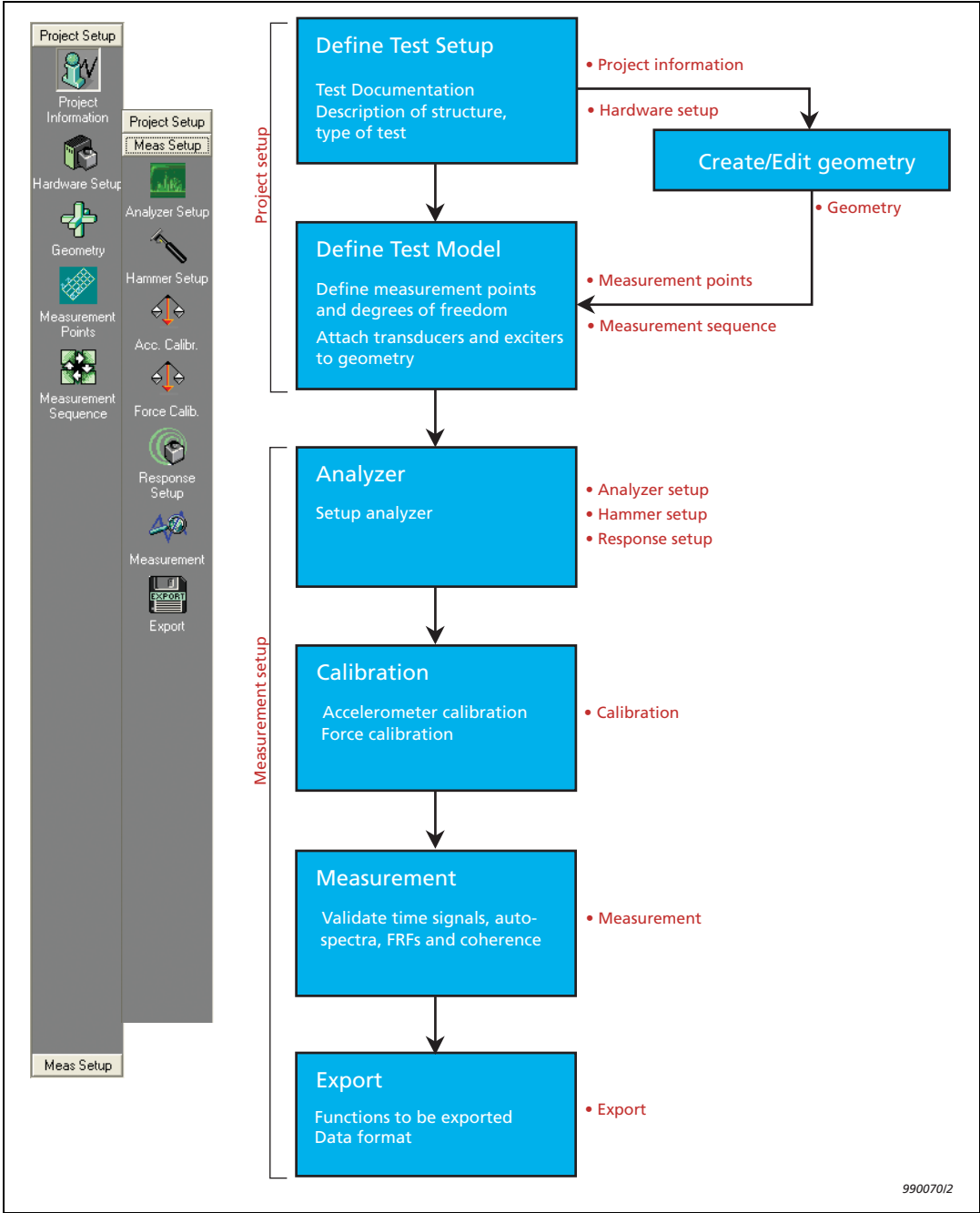
<sup>1</sup>. As certain tasks provide information for others, it is not possible to arbitrarily arrange the task sequence

An outline of a typical measurement using hammer excitation is summarised in Fig. 5. It shows the basic tasks and the order in which you might choose to perform them. MTC provides a dedicated task screen for each of the “boxed” items, most of which are geometry driven, graphically driven, or are tables with intelligent drop down lists for ease-of-use.

When using hammer or shaker excitation, the PULSE templates for MTC are divided into two task groups. One is for the Project Setup, and the other is for performing the measurement and exporting the data. In each of these task groups, there is a number of functions to guide you through the complete modal test.

MTC owners can obtain the ODS TC application via an upgrade and vice versa. Refer to the section on Upgrades.

**Fig. 5**  
*Outline of a typical hammer measurement sequence showing the different tasks to be completed (boxed items) and the corresponding task icons appearing in the Modal Test Consultant*



The graphically driven screens, such as the hammer setup, shaker setup or response setup screens, enable you to set PULSE parameters such as triggering levels and time



weighting windows by dragging the relevant curves and cursors with the mouse (see Fig.6). This is a unique feature and it greatly simplifies these tasks by letting you see the triggering level and move the triggering level cursor on the screen. Dragging the time weighting window until it correctly envelops the excitation time signal, sets the excitation time weighting. In the response view, you can see the attenuation of the response time signals by the weighting and adjust it interactively.

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## Tasks – MTC

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### General

This section describes the MTC tasks that are required during modal analysis. The tasks are listed in a logical sequence, as they would appear on the task bar, please see Table2.

**Table2**  
Tasks available in  
MTC

MTC Tasks	Hammer Measurements	Shaker Measurements	OMA Measurements	OMA Recorder Measurements
Pre-test			X	X
Hammer Setup	X			
Response Setup	X			
Shaker Setup		X		
Force Calibration	X	X		
Recording				X
Playback				X
Export	X	X		
View and Export			X	X

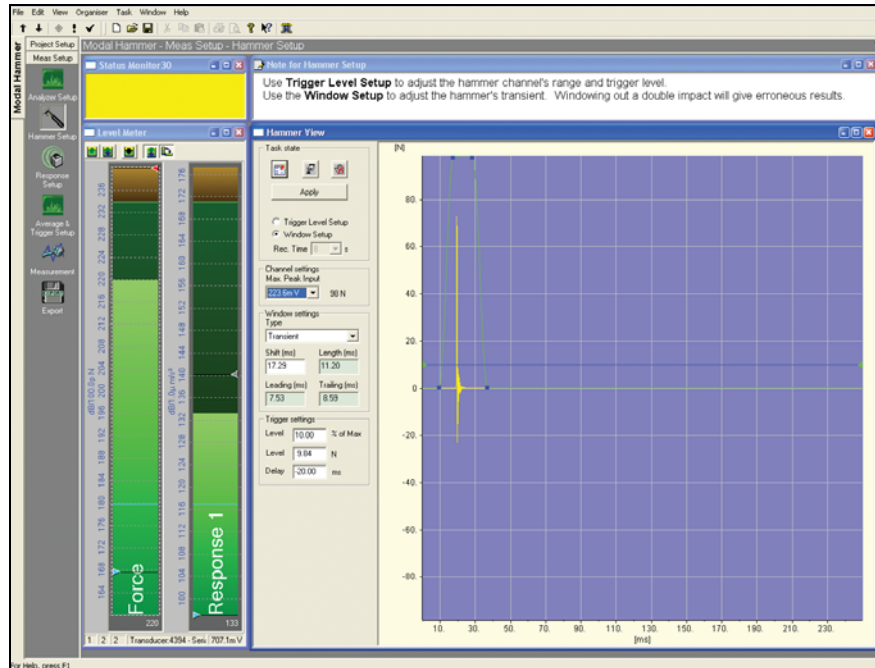
#### *Pre-test*

The Pre-test function is used for OMA only. It is used for pre-analysis, validation of signals and for selecting data acquisition parameters.

#### *Hammer Setup*

Modal Analysis using hammer excitation differs slightly from shaker excitation. Fig.6 shows a measurement setup, in MTC, using a triaxial accelerometer as the reference and a modal hammer with a force transducer for excitation. Under Project Information, Measurement Method, you can select between roving or fixed hammer. The hardware setup is similar to that used for shaker excitation. The use of a triaxial accelerometer enables simultaneous measurements in the x, y and z directions.

**Fig. 6**  
*Hammer setup showing the impact force signal and the weighting function*



### Response Setup

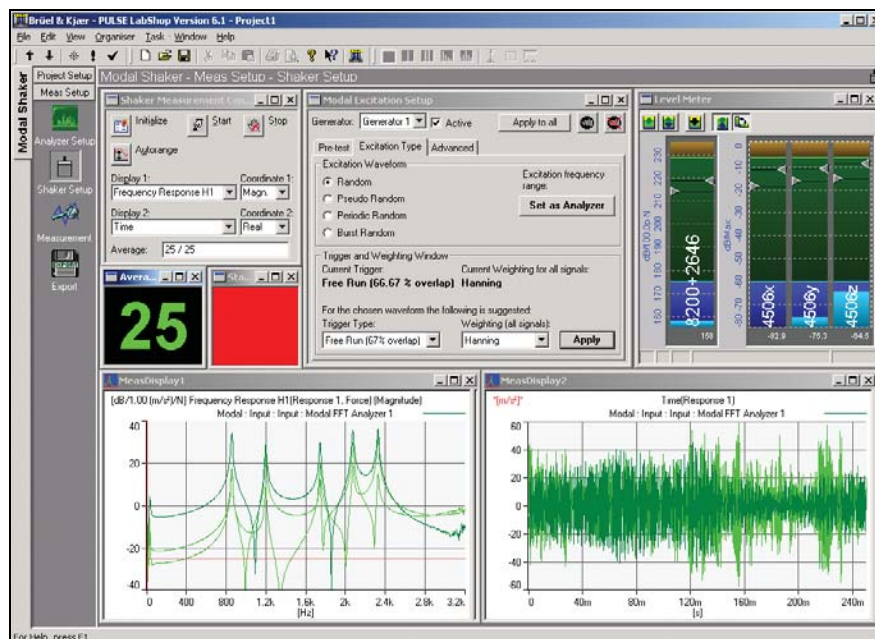
This is used to ensure that the correct time-weighting is applied to the response signals. This is done using a graphical on-screen tool that simplifies setting the response time-window.

### Shaker Setup

In the shaker setup, you can perform simple pre-tests with various excitation signals in order to check for linearity, etc., to set the correct amplitude and to check that the cables, etc., are properly connected. Refer to Fig. 7.

For triggering and weighting conditions, MTC provides proper recommendations. These can be selected if required, or alternatively, you can enter your own parameters. Activation of the template downloads the selected settings to the signal processing system. On starting the measurement, you can check that the shaker excitation is running correctly and also ensure that the excitation spectrum contains energy at all frequencies in the range of interest.

**Fig. 7**  
*Shaker setup showing the excitation options*



### Force Calibration

After calibrating the accelerometers, a force calibration can be done. This is automatically performed, using the following method; the mass of a test mass is measured and the force channel is calibrated such that the ratio of force divided by acceleration (equal to the mass) is correct (calibrated). Assuming the accelerometer is already calibrated, the force channel is therefore also calibrated.

### Recording

When long time signals are needed for OMA, the Data Recorder option is used. This function helps you make the recording easily.

### Playback

This is used in OMA when a time recording has been made with the Data Recorder. The playback function enables you to play back the recorded time data to the time capture analyzer for validation and export settings once the recording has been made.

### Export

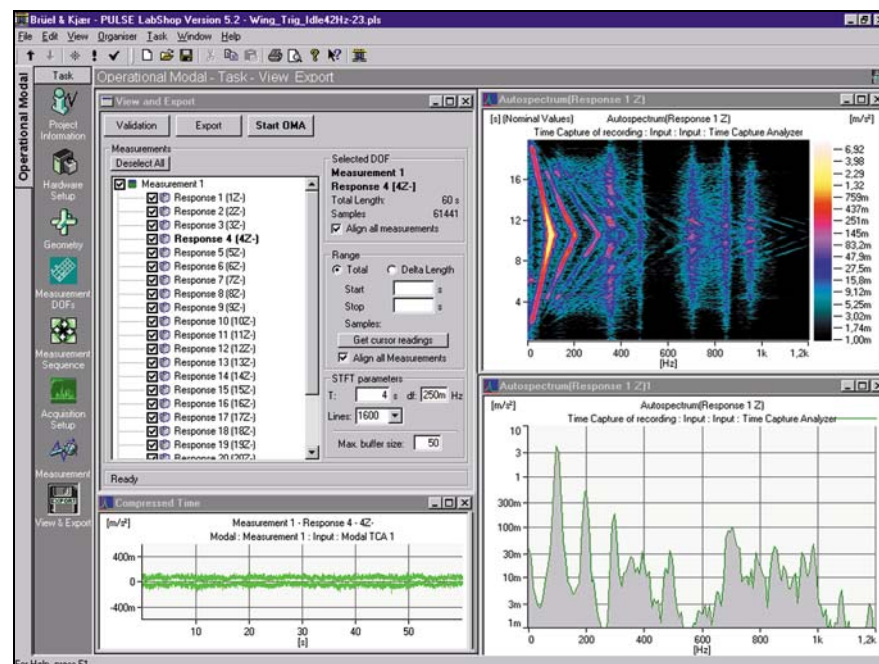
The Export task enables you to export measurement data, calculated functions and geometry in different data formats. Again, everything is laid out in easy-to-use menus. Having made your choices, all that is needed is to click on “Export”, and the geometry, the correctly DOF labelled functions that you have chosen, are exported in the correct format to the post-processing package, ready for analysis and animation.

MTC fully integrates with ME’scopeVES™ via OLE automation. If not already open, it automatically starts up ME’scopeVES™ by creating a new project. If already open, it transfers the data into the existing project. The measurement data and geometry are automatically inserted into the project in ME’scopeVES™’s native data format. You can now immediately start working on the post-processing of the measurement data. This, in effect, turns MTC and ME’scopeVES™ into one single application.

### View and Export

This is used with OMA for validation of data and to select the part of the signals to be exported. It uses Short Time Fourier Transforms with a colour contour plot to give an overview of the time data before you start the operational modal analysis software package, see Fig.8. It allows geometry and DOF labelled time data to be smoothly transferred into OMA. If not already open, it automatically starts up OMA by creating a new project. If already open, it transfers the data into the existing project.

**Fig. 8**  
The View and Export task showing a Short Time Fourier Transform colour contour plot, etc.



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## Operating Deflection Shapes Test Consultant – Type 7765

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<i>USES</i>	Supports the measurement and visualisation of vibration patterns of structures under defined operating conditions
<i>FEATURES</i>	Complete guidance through all stages of ODS measurement FFT and Order Analysis under stationary, or almost stationary, operating conditions The Tachometer can be used as a reference Supports multiple references Validation of Stationarity including speed profiles Ratio-based Phase Assigned Spectra (PAS), giving the average ODS under almost stationary conditions

### Introduction

ODS TC supports the process of identifying and solving problems, related to the dynamic behaviour of a structure. These range from infrequently performed dedicated diagnostic tests to standard tests done repetitively. It uses the unique geometry driven concept similar to MTC, combined with a strong FFT and Order analysis option, featured in PULSE. FFT analysis is used for stationary conditions, whereas Order analysis (tracking) is used to eliminate ‘smearing’ of spectral components in cases of almost stationary conditions. The ODS of different spectral components (frequencies or orders) is subsequently extracted and shown in an animation program, for visualisation of the vibration patterns of a structure, under operating conditions.

### Measurement and Visualisation

ODS TC is a task-oriented application that simplifies setup, measurement and measurement validation. It can be operated in one of three modes; FFT Analysis without a tachometer probe, FFT Analysis with a tachometer probe and Order Tracking. (For more information on Order Tracking, refer to BP 1634, Product Data for Order Analysis Type 7702.) The results are transferred to an animation program for the visualisation of the ODS, or vibration pattern. It has been designed to provide a specifically smooth interface with ME’scopeVES™ products from Vibrant Technology Inc., but also supports export in UFF and other used formats.

ODS TC owners can obtain the MTC application via an upgrade and vice versa. Refer to the section on Upgrades.

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## Tasks – ODS TC

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### General

This section describes the dedicated ODS TC tasks that are required during ODS analysis. The tasks are listed in a logical sequence, as they would appear on the task bar, see Table 3.

**Table 3**  
Tasks available in  
ODS TC

ODS TC Tasks	ODS – using FFT but no Tacho	ODS – using FFT and Tacho – using Order Analyzer
Tacho Setup		X
Time	X	X
Validation	X	X
Export	X	X

**Tacho Setup**

This task facilitates the setting up of the Tachometer, for tacho detection and tacho gearing.

**Time Task**

This task displays the time series of the responses.

**Validation**

The Validation task is used to check the stationarity of the signals:

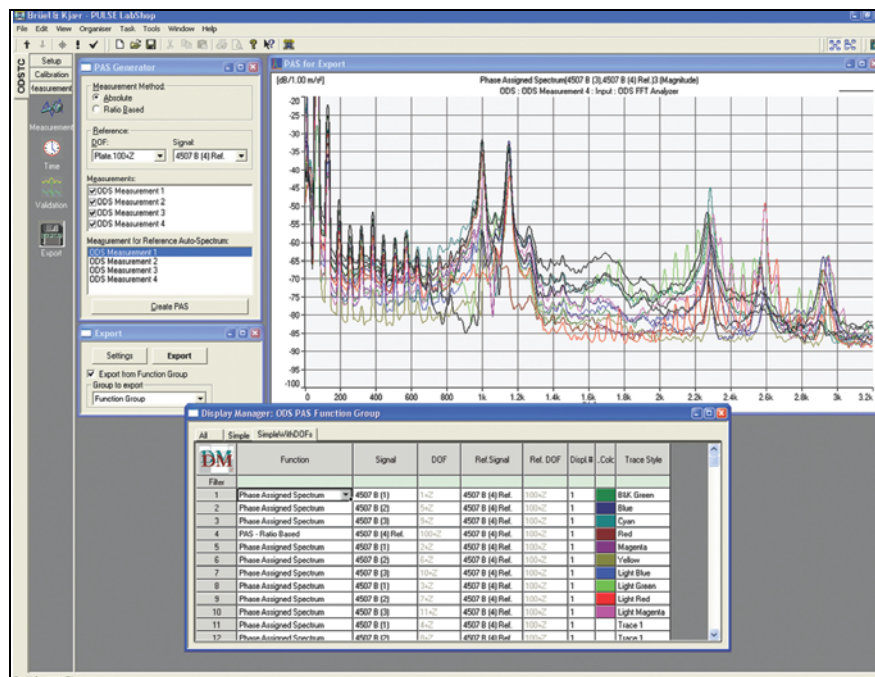
Between measurements, by comparing the reference autospectra as well as the speed profiles of the different measurements. (Only possible for speed profiles if the tachoprobe is fitted and Order Analysis Type 7702 software is installed)

During a measurement, by looking at the speed profile during each measurement. (Only possible for speed profiles if the tachoprobe is fitted and Order Analysis Type 7702 software is installed)

**Export**

The Export task enables you to select the method of PAS calculation and to validate each PAS. It also allows you to export measurement data, calculated functions and geometry in different data formats. Again, everything is laid out in easy-to-use dialogs and displays. Having made your choices, all that is needed is to click on “Export”. The geometry and the correctly DOF labelled functions that you have chosen are exported in the correct format to the post-processing package, ready for analysis and animation.

**Fig. 9**  
A typical Export  
task display



The ODS TC fully integrates with ME'scopeVES™ via OLE automation. If not already open, it automatically starts up ME'scopeVES' by creating a new project. If already open, it transfers the data into the existing project. The measurement data and geometry are automatically inserted into the project in ME'scopeVES™'s native data format. You can

now immediately start animating the ODS and creating ODS Shape tables. This, in effect, turns ODS TC and ME'scopeVES™ into one single application.

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## Upgrades

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The following upgrades are available from Brüel & Kjær:

BZ 5455 – Upgrade from ODS Test Consultant to Modal Test Consultant

BZ 5457 – Upgrade from Modal Test Consultant to ODS Test Consultant

ODS TC Type 7765, together with the BZ 5455 upgrade, is identical to MTC Type 7753 with BZ 5457 upgrade. Both combinations allow access to the standard functionality in ODS TC and MTC.

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## Accessories

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Brüel & Kjær supplies the complete range of equipment needed for structural dynamic measurements, including transducers, hammers, shakers, power amplifiers, cables, conditioning equipment, front-ends and analyzers. In addition to our own applications, we also supply products from selected third parties, such as ME'scopeVES™ from Vibrant Technology Inc. For more information, see “Modal Test Solutions”, BU 0232.

# Specifications – Modal Test Consultant Type 7753 and Operating Deflection Shapes Test Consultant Type 7765

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## PULSE System Requirements

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PULSE v. 7.0 or later

### COMPUTER REQUIREMENTS

- The PC requirements for PULSE, the Multi-analyzer System Type 3560, must be fulfilled (see BU 0216 and BU 0228)

### SOFTWARE REQUIREMENTS

#### MTC:

- Noise and Vibration Analysis Type 7700 or FFT Analysis Type 7770 must be installed
- For MIMO analysis, Multiple-Input Multiple-Output Analysis Type 7764 must be installed
- For OMA, Time Capture Type 7705 must be installed, Data Recorder Type 7701 can be added as an option

#### ODS TC:

- Noise and Vibration Analysis Type 7700 or FFT Analysis Type 7770 must be installed
- For Order Analysis, or FFT plus Tacho, Type 7702 must be installed

### USER INTERFACE

Microsoft® Windows®-based with task bar

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## 3D Modelling Specifications

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Modal Test Consultant Geometry Generator contains a range of tools for creating test object geometry. You can import geometry in UFF or DXF file formats or create it from scratch using basic drawing objects and lines combined into the desired shape (structure)

**Geometry Import Formats:** DXF from AutoCAD® v. 10, UFF data set types 15, 82 or 2411

**Geometry Export Formats:** UFF data set types 15, 18 or 82 and MEscopeVES™ native geometry format (\*.str)

**Views:** Three 2D views: Plan View, Side View and Front View (PV, SV, FV), isometric view, and user-defined 3D views  
Split screen views combining 2D and 3D views  
Pan, zoom and rotate options for viewing geometry  
All views scalable

Full dynamic rotation of test object geometry

**Drawing:** Creation of points, lines, faces and basic 3D shapes including surfaces. Drawing using mouse, or by inputting coordinates. Automatic mesh generation for basic shapes. Easy object rotation and adjustment in 3D space including:

- Cartesian, spherical and cylindrical coordinates
- Local coordinate systems
- Geometry components

#### Geometry Explorer:

Tabular displays of elements and points used to make up the geometry

#### Table Functionality:

- Editable point labels
- Filtered display of points on using alphanumeric filters
- Automated point numbering
- Partial or complete semi-automated point renumbering
- Fully configurable display (choice of columns to be displayed, drag and drop column labels, scalable column widths and fully scrollable display window)
- Point display on geometry options including text labels, pre-fixes for point numbers and hide/unhide features

**Element Display:** Hierarchical tree view for substructures of geometry

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## Measurement Setup

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The front-end hardware is automatically detected. Transducer information is held in the PULSE transducer database allowing transducers to be selected both by type, by name or by serial number. When using PULSE and TEDS equipped transducers, the information is automatically retrieved from the transducer and entered into the hardware setup

### EXCITATION OPTIONS

Hammer, shaker or natural excitation (OMA)

### MEASUREMENT POINTS

All measurement points and directions (DOFs) viewable on geometry and displayed as icons showing the type of transducer being used

#### Geometry Driven Addition Of:

- Transducer type
- DOF information

#### Geometry Based:

- Indication of DOF direction using colour coded indicators
- Full support for DOFs mounted at skewed angles
- Automatic DOF alignment to cylindrical/spherical coordinate systems

#### Editable Table Views:

- Measurement point information
- System hardware setup and properties

### ANALYZER SETUP OPTIONS (AS IN PULSE)

#### Graphically Driven:

- Measurement triggering setup
- Setup for time weighting functions and excitation & response Audible status/error warnings during setup and measurement Visual status monitoring for channel overloads

### DOUBLE HIT DETECTION

Automatic detection and rejection of double hits, before averaging, according to user definable settings. Includes visual and audible notification

### SHAKER SETUP

Setup of generator signals which are provided to the shaker

### CALIBRATION AND FORCE CALIBRATION

Semi-automatic calibration and force calibration with most recent calibration viewable in tabular format for all channels

### PRE-TEST (OMA ONLY)

Gives an overview of the signals and validates them. Used for setting up the actual measurements

### TIME DATA ACQUISITION SETUP (OMA ONLY)

Setting up the frequency range and time duration for the signal to be acquired

### TACHO SETUP (ODS TC ONLY)

Setting up tachometer detection and gearing conditions

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## Measurement

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### Data Acquisition For:

- Modal Analysis (hammer- and single/multiple shaker-based)  
Time data, Autospectra, Cross-spectra, FRF, coherence and correlation viewable
- Operational Modal Analysis  
Time data
- ODS  
Two types of Phase Assigned Spectra  
Time data

## Data Export In:

- UFF and I-DEAS<sup>®</sup> Test, ICATS, STARModal and ME'scopeVES<sup>™</sup> native data formats for measurement functions, data and geometry

## Export to ME'scopeVES<sup>™</sup> Type 7754 and Operational Modal Analysis Type 7760:

Automatic start-up of program and new project creation using OLE linking. Data inserted directly into new project ready for analysis/animation

## Ordering Information

Type 7753	Modal Test Consultant
Type 7765	Operating Deflection Shapes Test Consultant
BZ 5455	Upgrade from ODS TC to MTC
BZ 5457	Upgrade from MTC to ODS TC

Type 3626	400 N Modal Excitation System
Type 3627	650 N Modal Excitation System
Type 3628	1000 N Modal Excitation System
Type 4808	Shaker
Type 4809	Shaker
Type 4810	Mini-shaker
Type 5961	Hand-held Shaker
Type 2706	Power Amplifier
Type 2717	Power Amplifier
Type 2718	Power Amplifier
Type 8200	Force Transducer
Type 8201	Force Transducer
Type 8203	Force Transducer/Impact Hammer
EE 0359	DeltaTron Impact Hammer <sup>3</sup> (10 mV/lbf)
EE 0063	Lightweight Modal Accelerometer
EE 0077	Z-Mount Modal Accelerometer

## With IDA<sup>e</sup>-based Hardware

### SOFTWARE

BZ 5217 PULSE LabShop CD-ROM

### MTC Requires:

Type 7700-Xy<sup>1</sup> Noise and Vibration Analysis  
or

Type 7770-Xy<sup>1</sup> FFT Analysis

Type 7764 MIMO, for MIMO analysis

Type 7705 Time Capture, for OMA

Type 7701 Optional Data Recorder, for OMA

### ODS TC Requires:

Type 7700-Xy<sup>1</sup> Noise and Vibration Analysis  
or

Type 7770-Xy<sup>1</sup> FFT Analysis

Type 7702-Xy<sup>1</sup> Optional Order analysis, or FFT plus Tacho

### Standard options:

BZ 5372-zz Microsoft<sup>®</sup> Windows<sup>®</sup> 2000 without Manuals

BZ 5373-zz Microsoft<sup>®</sup> Windows<sup>®</sup> 2000 with Manuals

UL 0208-zz Microsoft<sup>®</sup> Office XP Small Business Edition

UL 0209-zz Microsoft<sup>®</sup> Office XP Standard Edition with Manuals

UL 0207-zz Microsoft<sup>®</sup> Office XP Professional Edition

zz specifies country: GB, DE, FR, ES, IT, SE

### PC HARDWARE

UL 0167 Intel<sup>®</sup> in Business 8 port 10/100 Switch for Ethernet

AO 1450 LAN Interface Cable with RJ45

### ACQUISITION HARDWARE

Type 3560 C Portable PULSE

Type 3560 D Multichannel Portable PULSE

Type 3560 E Multichannel PULSE

## Optional Accessories

Type 4506	Triaxial Ortho Shear <sup>®</sup> Accelerometer <sup>2</sup>
Type 4507	Monoaxial Accelerometer (side connector) <sup>2</sup>
Type 4508	Monoaxial Accelerometer (top connector) <sup>2</sup>
Type 3624	100 N Modal Excitation System
Type 3625	200 N Modal Excitation System

1. Where 'X' indicates the license model, either N: Node Locked or F: Floating and 'y' is any number between 2 and 16 – the number of channels supported by the license, (e.g. 7700-N7 denotes a node locked, 7 channel license). A 16 channel license supports up to 128 channels.

2. Different sensitivities, for accelerometers with or without TEDS fitted, are available, please contact Brüel & Kjær for details

### TRADEMARKS

AutoCAD is a registered trademark of Autodesk, Inc.

Intel is a registered trademark of Intel Corporation

I-DEAS is a trademark of Structural Dynamics Research Corporation

## Optional Post-processing Software

Type 7754 G	Brüel & Kjær ME'scopeVES Visual ODS <sup>4</sup>
Type 7754 H	Brüel & Kjær ME'scopeVES Visual ODS Pro <sup>4</sup>
Type 7754 I	Brüel & Kjær ME'scopeVES Visual MODAL <sup>4</sup>
Type 7754 J	Brüel & Kjær ME'scopeVES Visual MODAL Pro <sup>4</sup>
Type 7754 K	Brüel & Kjær ME'scopeVES Visual SDM <sup>4</sup>

Type 7760 A Operational Modal Analysis, Pro<sup>5</sup>

Type 7760 B Operational Modal Analysis, Pro (Academic Version)<sup>5</sup>

Type 7760 C Operational Modal Analysis, Standard<sup>5</sup>

Type 7760 D Operational Modal Analysis, Standard (Academic Version)<sup>5</sup>

Type 7760 E Operational Modal Analysis, Light<sup>5</sup>

Type 7760 F Operational Modal Analysis, Light (Academic Version)<sup>5</sup>

## Maintenance and Upgrade Agreements

M1-7753-X<sup>6</sup> MTC Software Maintenance & Support Agreement

M1-7765-X<sup>6</sup> ODS TC Software Maintenance & Support Agreement

M1-5455-X<sup>6</sup> Maintenance & Support Agreement for Upgrade from ODS TC to MTC

M1-5457-X<sup>6</sup> Maintenance & Support Agreement for Upgrade from MTC to ODS TC

3. Different sensitivities available, please contact Brüel & Kjær for details

4. All ME'scopeVES<sup>™</sup> software is developed by Vibrant Technology, Inc., Jamestown, California, USA

5. Operational Modal Analysis is developed by Structural Vibration Solutions, Ålborg, Denmark, in cooperation with Brüel & Kjær

6. Where 'X' indicates the license model, either N: Node Locked or F: Floating

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STAR System is a trademark of Spectral Dynamics, Inc.

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