**Clear MotionTM – The ultimate ODS software**

The ultimate software for visualizing vibration. Clear Motion ODS is a program for animating measured vibration. It is designed for animation of both Operating Deflection Shape (ODS) as well as Impact Response measurements. It is able to import vibration data from other systems so you don’t need to buy new equipments, you can use your present data acquisition device.

**Animate measured structural vibration...**

* Easily build models of complex machinery and structures.
* You can insert pre-defined *solid bodies* into the model. There are many solid bodies to choose from (cylinders, rectangles, pipe components, etc.)
* You can import data from CAD software using DXF file format.
* You can directly insert nodes into the model, then join these nodes to form lines, triangles and surfaces.
* Generate better, more accurate animations.
* See motion more clearly, to help identify and troubleshoot vibration problems.
* Generate interactive, animated PDF files for embedding animation directly in reports!
* Import data from data collectors, or use the included DAQ software to measure vibration. (Compatible: AzimaDLI RTA, TDMS format, UFF file format, and ME'Scope text format)
* Troubleshoot equipment failures caused by vibration.
* Help identify potential vibration problems before a failure occurs.
* Help determine the presence of structural defects (loose or broken bolts, cracked supports, etc.)
* Identify the effects of different operating conditions or machine vibration.
* Understand and document the vibrating motion of any machine or structure.

**Download a free 30 day trial now!** [**www.delta3n.hu**](http://www.delta3n.hu)

**What is an Operating Deflection Shape (ODS)?**

An Operating Deflection Shape (or ODS) consists of vibration measurements taken at various points on a machine or structure. The measurements are taken while the machine is operating. Clear Motion ODS is a software package designed for building structural models, and applying measured values to the models to generate animations of the structural motion.

**Animation**

One of the main reasons that Clear Motion ODS was developed was to produce better animation quality. Other systems are available which will animate structural motion. However, these systems commonly introduce distortion of the animated motion due to rotation.

**Why is Rotation a Problem?**

When you model of a structure, you will typically create a model with more nodes than will be actually measured. This produces a realistic looking model, without requiring the measurement of hundreds or thousands of points on the structure.

This causes a problem for most ODS programs. They use linear interpolation to estimate the motion of the non-measured points. When the measured structure is undergoing rotation, this can lead to significant distortion of the animation.

Clear Motion ODS uses solid body rotation to solve this problem. The rotation of the measured points is used to produce better estimates the motion of the non-measured points.

**What is an Impact Response?**

An impact response measurement consists of one or more vibration measurements on a structure. Unlike an ODS, an impact response measurement is taken when the machine is not in operation. Instead, the measured vibration is in response to a hammer impact on the machine.

**What is an Impact Response used for?**

When a structure is impacted, it will respond at the structure natural frequencies. The shape of the vibration will correspond to the modeshapes of the structure.

* The natural freuqencies determined from the impact response can be compared to typical excitation frequencies of the equipment. If natural frequencies are close to excitation frequencies, the vibration will be amplified.
* The mode shapes can be compared to the ODS measurements for a system to determine if mechanical resonance is a significant factor in operating vibration.
* The mode shapes show locations of high stress (significant bending).