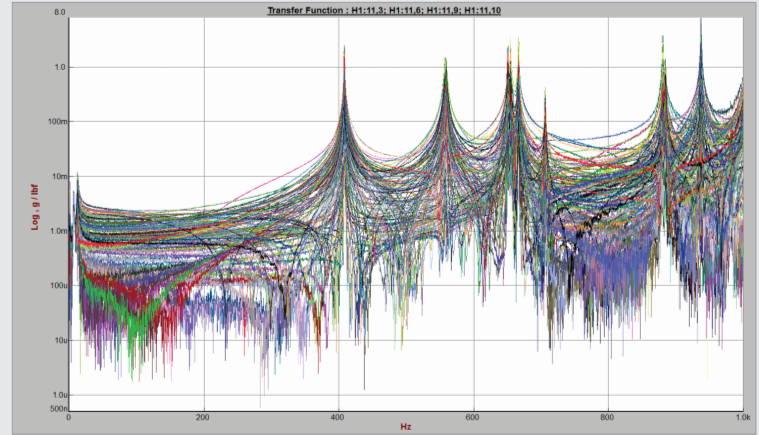


## Structural Analysis

DP930-10, -71

One of the common uses of SignalCalc analyzers is to perform modal analysis studies to characterize the structure under test. Modal measurements are typically done with an impact hammer or with a modal shaker. Both measurements require special signal processing features such as pre-triggering, special windowing functions, source triggering, preview capture, etc., that are built into the system.

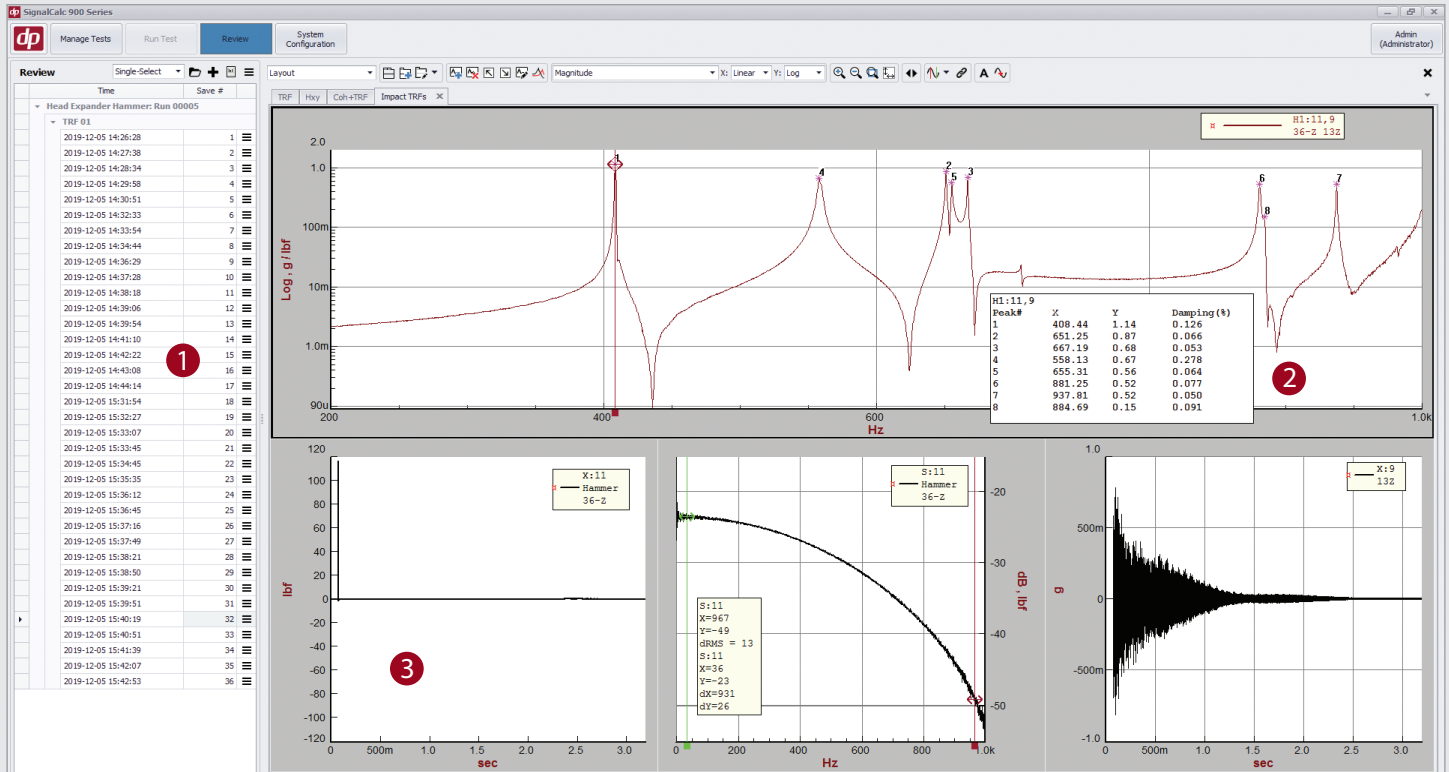
The software also provides an automated book-keeping scheme that tags each measurement with structural geometry information that can be easily exported to modal analysis programs.



## Features and Benefits

Feature	Benefit
Up to 51,200 frequency lines of resolution	Isolate closely spaced modes
>140 dB dynamic range in low frequency applications	Useful for high signal-to-noise measurements and is imperative for high Q structures such as turbine blades
Transfer Function Measurements	TRFs based on H1, H2 and Hv (opt 71 MIMO) techniques are provided to account for the presence of noise on the input/output channels
Rectangular, Hanning, Flat Top, Force, Exponential Windows	Minimize spectral leakage as needed for application
Structural Geometry Information	Easily assign Rectangular, Cylindrical or Spherical coordinates to measurements
Programmable sequencer to automate the tagging of points and direction information	Particularly useful during Impact Hammer Testing when roving the hammer across different locations and directions
Preview Average mode	Examine time and frequency domain views of impact hammer data before accepting into the measurement
Shaker Testing excitation	Large range of output signals to cater to variety of measurement situations – Random, Burst Random, Pseudo Random, Sine, Swept Sine, Square, Swept Square, Chirp, Impulse, etc.
MIMO Analysis (opt 71)	Analyze modal properties in advanced structures by exciting with multiple shakers at different locations and directions simultaneously. Excitations from different source channels are uncorrelated ensuring highest quality transfer functions
File Export to modal analysis or animation programs	Export to MEscape, UFF, Matlab, SDF, ASCII/CSV

## Impact Hammer Measurement



### 1 Measurement Saves

Review panel provides a quick way to browse through the individual saves or overlay them for comparison.

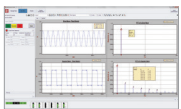
### 2 Modal Damping

A single degree of freedom circle fit method is provided to identify natural frequencies and estimate damping values.

### 3 Hammer Impact

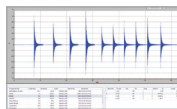
Pre-trigger delay provides a way to display the complete impact hammer signal.

## Related Applications



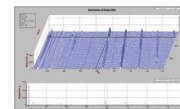
### FFT Analysis DP930-10

Acquire and analyze data using auto and cross spectrum, transfer function, auto and cross correlation, histogram, and synchronous averaging



### Recording and Playback Analysis DP930-23

Record data up to 200 k samples/second simultaneously with real-time measurement or control



### Waterfall Analysis DP930-25

Acquire and analyze multiple FFTs with fixed frequency span, paced at delta time intervals to create a three-dimensional view of frequency content variation over time

NOTE: Continued product improvement necessitates that Data Physics reserves the right to modify these specifications without notice.