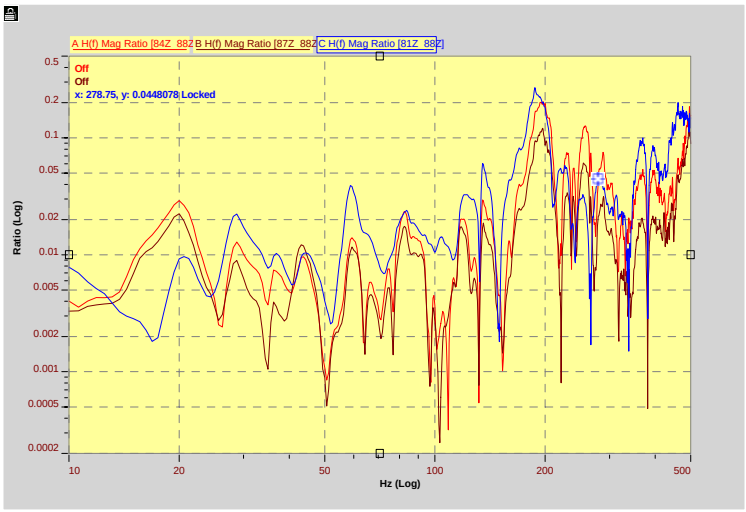
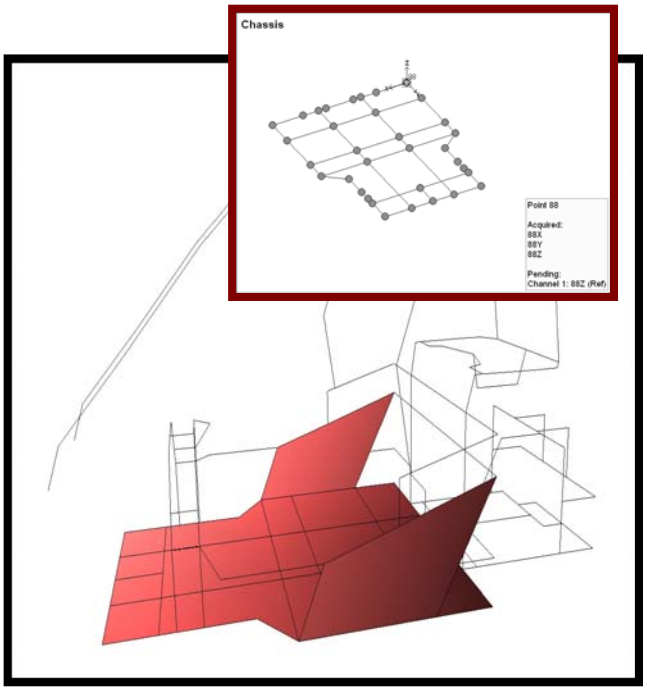
CATS™ Modal Acquisition



CATS Modal Acquisition was designed specifically for acquiring data for Modal Analysis. Some of the Modal specific acquisition capabilities include automatic incrementing of modal DOF during acquisition, ability to set up multiple tables of DOF numbers and directions for efficient management of modal data, data stored and recalled according to modal DOF label, the data can be stored in CATS binary format, STAR binary, and Universal File Format, and optional outputs are available that include drive signals for Random, Sine, Pseudo Random, Sine Chirp, Burst Random, and User-defined waveforms.

CATS Modal Acquisition coupled with CATS Modal will speed up your acquisition process and assure you that all measurements have been acquired as intended by:

1. Automatically generating the DOF Table in Modal Acquisition from the geometry created in CATS Modal.
2. As the data is being acquired you can view the Channel and direction information at any point, along with an indicator for whether it's a response or reference location.
3. View the progress of your acquisition via your model. We accomplish this by highlighting the acquired locations with green circles. The criteria for what constitutes an acquired point can be customized.
4. When the store button is clicked in Puma, the measurements are automatically sent to CATS Modal. The measurements can then be viewed instantly by clicking on the Measurements tab in CATS Modal.



CATS™
Computer Aided Test Suite

SPECTRAL DYNAMICS

Graphics so POWERFUL, the user interface can be simple

Input

Input channels	4 to 32: all simultaneously sampled
Input dynamic range	92 dB
Maximum input	±10V (16bit FE), ±12V (24bit FE)
Voltage ranges	17 ranges, 27 mV to 12V full scale, 3dB steps (16bit FE) .44V, 2.5V and 12V (24bit FE)
Overload detection	Full scale on all channels, analog and digital detection
Voltage coupling	AC or DC
ICP power	4mA (20V maximum into open circuit)
Maximum rated input signal	±35 Volts peak
Sampling rate	51,200 samples per second (16bit FE) 102,400 samples per second (24bit FE)
Frame size	256, 512,1024, 2048 samples; 4096, 8192. 16384 and 32,768 samples optional (Premier)
Frame duration	10ms to 256 seconds

Output

Output channels	1 (up to 4 channels optional in Mimso/Modal)
Output dynamics range	90 dB
Maximum output amplitude	± 12V peak
Maximum output current	16mA
Voltage range attenuator	Programmable 48-bit
Attenuator range	0 to -160dB
Sampling rate	51,200 samples per second 102.4K option
Drive signals	
Random	Broadband; up to 3 Vrms
Sine	1 to 10000Hz; up to 10 Vpeak
Pseudo random	Broadband; up to 3 Vrms
Sine chirp	Fast sine sweep
Burst random	Windowed random burst with variable duration
User-defined	User-defined shaped broadband output

Analysis

Frequency range (DC to)	50, 80, 100, 200, 400, 500, 800, 1000, 2000, 4000, 5000, and 10000Hz; 20000 (40000Hz optional w/Premier)
Frequency resolution	100, 200, 400 and 800 lines; 1600, 3200, 6400 and 12,800 lines optional (Premier)
FFT windows	Hanning, Blackman, calibration, force/impact, Hamming, Blackman Harris and correlation
Window Scaling	Broadband or Narrowband
Spectra Weighting	Flat (None), A , B ,C acoustic functions

Averaging

Types	Linear, exponential, peak hold (max)
Number	1 to 32,768
Overlap Processing	None, 25%, 50%, 75%, Max.

Triggering

Modes	Free run, automatic, manual
Source	Any Input channel
Threshold	±mV, ± percent of full scale
Slope	Rising/failing
Delay	Specified in ms or percent of frame
Pre/Post-trigger duration	Specified in ms

Channel Setup

Channel type	Measurement, Reference, Measurement, inactive
Sensitivity	0.001 to 1,000,000 mV/EU
ICP power	On/off
Coupling	AC or DC
Channel label	Up to 8 characters for each channel
Transducer serial number	Up to 10 characters for each channel Transducer Database Optional

EU Definitions

Base Engineering Units	Label(EU), Conversion(EU/Transducer Units)
EU Calculations and Support	Integrated (Label and Scale Factor), Double Integrated(Label and Scale Factor), Differentiated (Label and Scale Factor), Double Differentiated (Label and Scale Factor)

On-Line Controls

Start/Stop test	Initiates or stops data acquisition
Auto-range	Automatically set Input channel voltage ranges
Manual Trigger	Set trigger to Manual arm mode
Arm Trigger	Initiate trigger threshold detection
Output	Turn output drive signal on/off

On-Line Status Monitors

Average count	Current number of frames averaged
Channel Status	RMS or peak levels for all active channels
Message log	Records all test operations, including operator commands, and reports on any error conditions

On-Line Analysis

Real-time displays	Any available function for all available channels may be displayed simultaneously.
Functions analyzed during the test	
Time	Windowed and un-windowed
Auto spectra	Linear, Magnitude Squared, PSD
Cross spectra	Magnitude, phase, real, Imaginary
Transfer functions	Magnitude, phase, real, Imaginary, coherence
Statistical functions	Probability density, auto correlation, cross correlation
1/n Octave	1/3, 1/6, 1/12, 1/24
Real-time/Stored data	Simultaneous display and overlay of spectra or time histories for real-time data and any stored data

DOF

Modal DOF	Data stored and recalled according to modal DOF label
Auto increment	Automatic incrementing of modal DOF during acquisition. Acquisition can be linked to Modal Model visualization
DOF Table	Set up multiple tables of DOF numbers and directions for efficient management of modal data

Data Storage

Data storage format	CATS binary format, STAR binary, and Universal File Format
Setup options	Select from all available functions, new data file or append data to file
Playback	Automatic play of entire test data file, with adjustable display update delay; manual selection; select by input channel number.
Run message log	Text file records all system status messages displayed during test run

Export Manager (Optional)

File formats	ASCII, STAR™, I-DEAS™, MATLAB™, UFF, ZMOD, ROM, SIR-1000, TH, TIM, TPD, TRD

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