

Ultra-Portable, Cost-Effective Dynamic Signal Analyzer **SignalCalc** **ACE**



4 input channels, 2 sources

High Speed Tachometer

120 dB dynamic range

40 kHz realtime bandwidth  
(94 kHz optional)

**SignalCalc**

Dynamic

Signal

Analyzers

**ACE**



# SignalCalc

Dynamic Signal Analyzers



## Ultra-Portable, Cost-Effective Dynamic Signal Analyzer

The new SignalCalc ACE weighs just over a pound, and packs an unprecedented signal processing punch: four input channels, two output channels, one tachometer channel, 40 kHz standard realtime rate (94 kHz optional), and over 120 dB dynamic range. ACE transforms any Notebook computer into a high precision dynamic signal analyzer, one that can travel with you and work professionally -- even in the absence of line power.

### **Standard Features**

- Auto Power Spectrum
- Transfer Function (FRF)
- Synchronous Average
- Correlation
- Histogram



### **Optional:**

- |  |   |
|--|---|
| Realtime Zoom                                | MIMO (multi-reference Transmissibility) |
| High Resolution, up to 25,600 lines          | Stepped Sine                            |
| RPM Based Measurements                       | SRS Analysis                            |
| Order Tracking                               | Drop Test                               |
| Demodulation                                 | Realtime Octave                         |
| Rotordynamics                                | Sound Quality - Loudness                |
| Balancing                                    | Sound Power                             |
| Waterfall, Spectrogram and Campbell Diagrams | Acoustic Intensity                      |

ACE is able to directly power integrated circuit piezoelectric sensors without additional signal conditioning electronics. ICP coupling, standard on ACE, adds to AC/DC coupling (each, single-ended or differential) to provide signal input choices for virtually any test. The optional TEDS compatibility makes set up of channel sensitivities and engineering units effortless.

## Unprecedented Power

Powered by Quattro, ACE provides 32 bit floating-point DSPs delivering up to 204.8 kHz sample rate on all channels simultaneously. All inputs are coupled to dedicated 24 bit sigma-delta ADCs while both outputs have 24 bit DACs. Integral anti-aliasing filters protect the inputs and outputs. This horsepower provides over 120 dB dynamic range with up to 94 kHz real-time rate while measuring and displaying 1600 line Transfer Functions, Coherence and all other related measurements. It facilitates high-resolution measurements to 25,600 lines, real-time Zoom, waterfall measurements and simultaneous disk recording. All signal processing is done by the DSPs embedded in Quattro; your computer running Windows, acts merely as the human interface and data display.

The high computation speed gives you overlap processing for faster averaging. It allows capture of machine run-ups, speech signatures and other rapidly changing time/frequency events as they happen. Your computer screen becomes an instantaneous viewport into the activity and content of your signals.

## Outstanding Dynamic Range

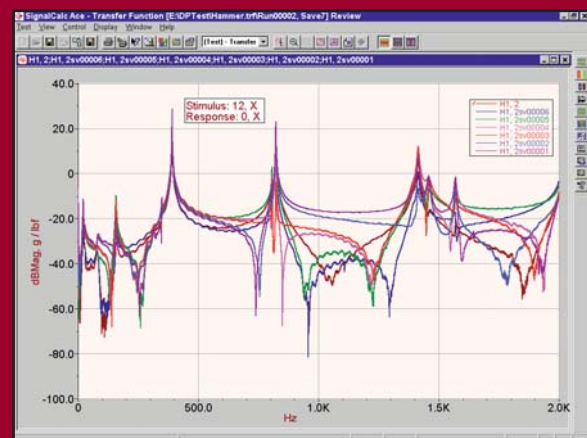
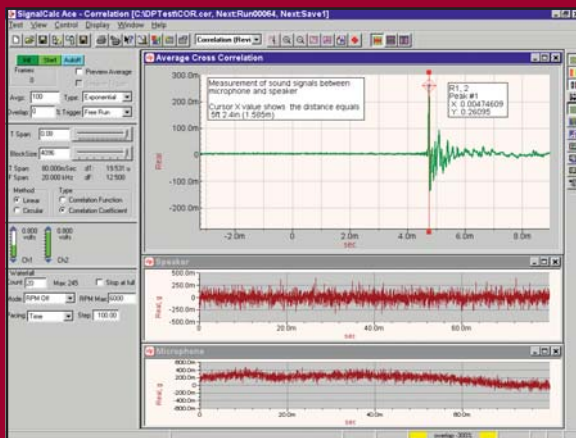
ACE incorporates high quality Sigma Delta converters, 32-bit floating-point arithmetic, leading edge analog design and accurate signal processing algorithms. This combination of carefully integrated ingredients produces measurements of astonishing dynamic range and fidelity. ACE can identify and separate two closely spaced tones differing in amplitude by a factor of 1,000,000: 1. In concert with Zoom and High-Resolution options, the high dynamic range allows you to detect features normally not observed in spectral measurements.



# SignalCalc ACE

## Comprehensive Measurements

ACE performs analysis in the time, frequency, order and amplitude domains. Use synchronous averaging to recover repetitive events buried in noise. Correlate signals to discover their similarity and temporal alignment. Use FFT spectrum analysis to identify dominant frequencies and spectral density levels. Characterize linear systems by their Transfer, Coherence and Impulse Response functions. Measure Probability functions and test the normality of your experimental data. SignalCalc ACE core functions include powerful FFT measurements, high dynamic range, and extensive analysis tools. Standard functions include full Engineering Units selection and conversion, Automatic Export, Professional Reports, easy data management with Signal Map, flexible display of results, cursor functions for detailed analysis, and an unsurpassed intuitive user interface. Optional application modules extend the functionality to include real-time Octave and 1/3 Octave analysis, Sound Power and Intensity, RPM-based measurements, Order Tracking, MIMO and Stepped Sine testing, SRS analysis, Demodulation, Rotordynamics analysis, multi-plane Balancing, Waterfall and Spectrogram presentations, Throughput-to-Disk, Zoom and High-Resolution FFT analysis.



## Multiple Analysis Domains

Choose the analytic viewpoint that best explains the physics of your application. ACE provides uniquely informative displays in Time, Frequency, Amplitude, Order, Amplitude and Angle domains.



# Ultra-Portable, Cost-Effective Dynamic Signal Analyzer

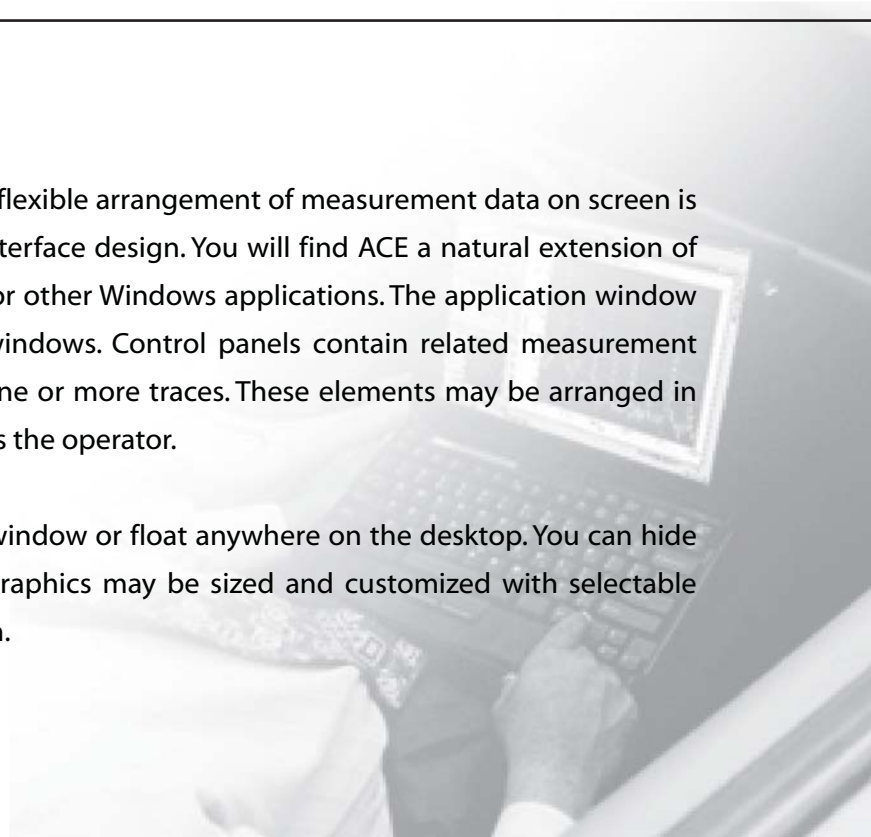
## Noise and Vibration Testing Features

Two independent signal generators provide choices of sine, swept-sine, random noise, pseudo-random, burst-random, pink noise, chirp, impulse and half-sine transients. For impact tests, excellent trigger controls combined with force and response windows, automatic overload rejection and preview averaging assure the capture of optimum data. For shaker tests, burst random eliminates spectral leakage from lightly damped structures while sine sweep and dwell support holographic studies. Perform MIMO analysis when driving a structure using the two sources or set up multiple references for transmissibility measurements. In Modal testing, ACE makes it easy to save measurement point and direction information with the FRFs in the native format of all currently offered commercial Modal Analysis programs.

## Intuitive User Interface

The intuitive organization of controls and the flexible arrangement of measurement data on screen is a significant contribution to the art of user interface design. You will find ACE a natural extension of how you use word processors, spreadsheets, or other Windows applications. The application window is divided into control panels and graphic windows. Control panels contain related measurement parameters while graphic windows contain one or more traces. These elements may be arranged in any format that suits the application or pleases the operator.

Control panels can dock to the edges of the window or float anywhere on the desktop. You can hide and retrieve them at the click of a button. Graphics may be sized and customized with selectable colors, textures, grids, readouts and annotation.





Discover more at [www.dataphysics.com](http://www.dataphysics.com)

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Data Physics has been supplying high performance test and measurement solutions for over 20 years. With the addition of a full line of electrodynamic shakers to complement its vibration controllers and dynamic signal analyzers, Data Physics is a total solution supplier for noise and vibration applications.

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