Solutions in Signal Processing

Powerful portable Analysis

SignalCalc® Turbo

4 - 32 channels, 2 - 8 tachometer channels per chassis

Unlimited expandability

120-150 dB dynamic range

40V input range

SignalCalc
Dynamic
Signal
Analyzers

Rotor Dynamics Analyzer

powered by ABACUS

Data Physics Corporation

SignalCalc®
Dynamic Signal Analyzers

Turbo

A powerful measuring instrument for Turbomachinery

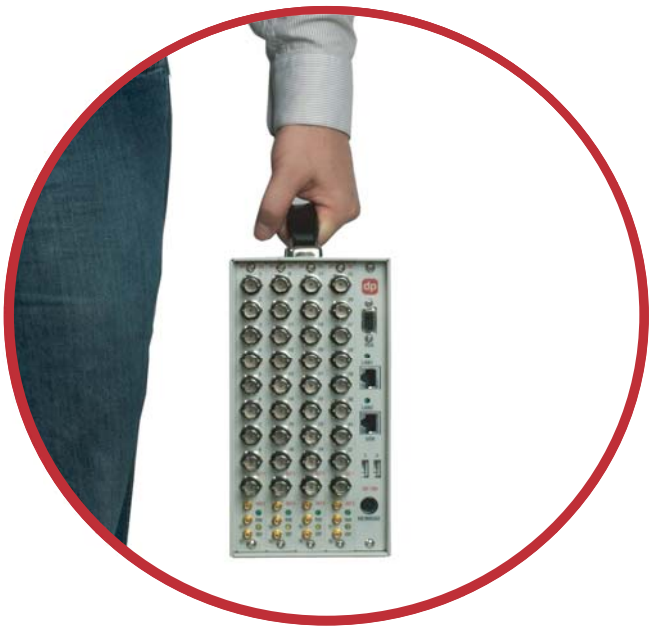
SignalCalc Turbo brings you a wealth of standard and optional features dedicated for the most demanding requirements for turbomachinery testing

Standard Features

- Convenient Setup of Project, Hardware, Measurement, Acquisition and Default Annotation

  Built in database for Channel Names, Machine Names, Phase Trigger Name and Transducers

- Reference information
  - Slow Roll Vector Reference
  - Wavefrom Reference
  - Gap Voltage Reference
- Plot Types
  - Orbit Orbit + Timebase
  - Time Trend
  - X-Y
  - Polar
  - Bode
  - Shaft Centerline
  - Cascade
  - Waterfall
  - Spectrum
  - Full Spectrum
  - Tables
- Default and Custom Layouts



Optional:

- Disk Recording and Playback Analysis
- DC Orbits
- Shaft Deflection View

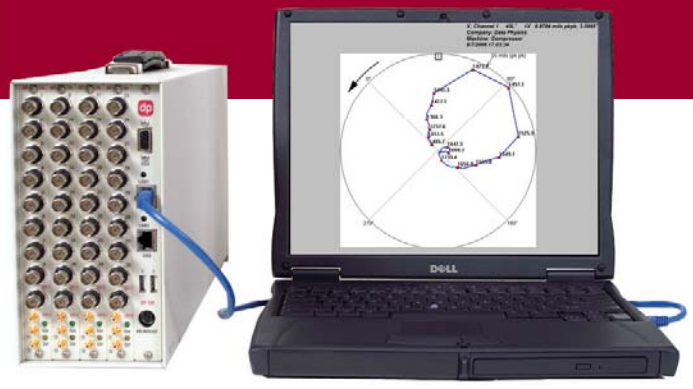
SignalCalc Turbo is a new portable data acquisition and analysis system for rotating machines with emphasis on machines that use journal bearings. Packed with powerful measurement functions, it is ready to tackle the most difficult rotating machinery diagnostic problems encountered in the power generation, oil and gas, transportation and processing industries.

A powerful measuring instrument for Turbomachinery

The software is easy to setup and configure and offers data plotting without user attention. The intuitive organization of project definition, parameter selection and graphic presentation of results ensures it is user friendly and easy to use.

Elegant data management utilities allow users to choose how often measurements are stored. Acquisition can be paced by time interval or speed changes to accurately characterize plant vibration under any operating condition. Users may freely define how often waveform sampled data and vector sampled data are acquired. Following completion of each measurement set, the results from the active project may be displayed in a variety of formats and layouts.

A project browser also provides comparative display of data from multiple runs and saves in any project in the database. Measurements can also be automatically exported to online modal analysis or animation programs in their native data formats.



Effective Display and Analysis Tools

Data from any type of vibration transducer combined with multiple phase triggers (tachometers) may be acquired, processed and displayed using unlimited display layouts. The most common graph types are easily accessed via a convenient layout selector; each layout may have its own unique set up of number of graphs, format and scaling with custom graph templates. A best-in-class 3D display library offers multiple graphing options including color spectrograms and Campbell diagrams.

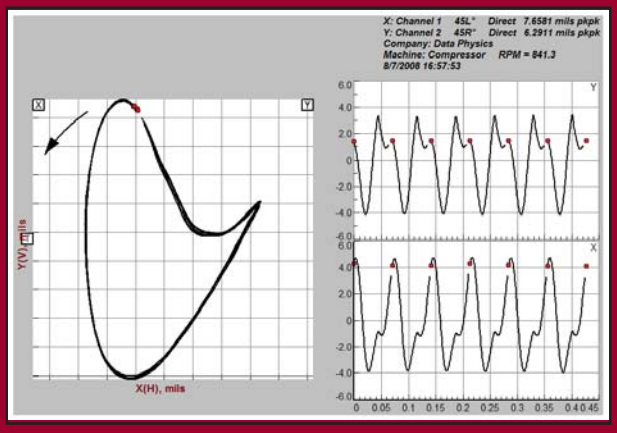
SignalCalc Turbo

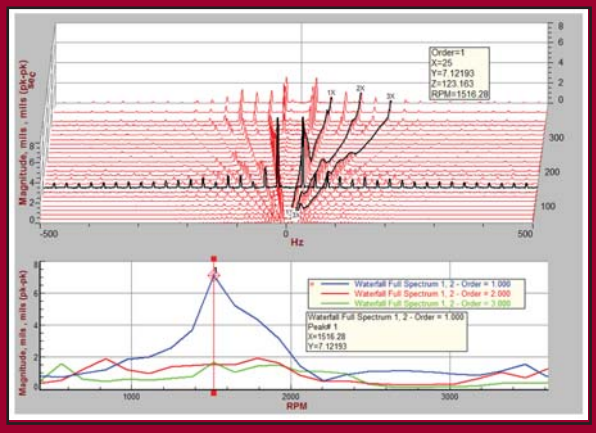
Advanced solution for rotating machinery diagnostics

Vibrations in shaft systems housed in journal bearings require special measurement and analysis techniques. The most fundamental measurements defining shaft motion in such bearings are derived from pairs of proximity probe type displacement transducers placed orthogonally at each bearing location. SignalCalc Turbo provides a comprehensive array of measurement and graphical tools designed to enable fast and effective diagnostics of fluid filled bearing systems.

Comprehensive Measurements

Vibration analysis on turbomachinery requires sophisticated data acquisition hardware and advanced measurement and analysis software functions, rotational phase detection, tachometer measurements, tracking filters and a wide array of time and frequency domain graphical presentations. Designed with the needs of the most discerning analysts in the industry in mind, the powerful





measurement suite handles simultaneous asynchronous and synchronous sampling and provides both vector and waveform samples while also recording raw data to disk for optional post processing. Order detection is based on user selectable tracking filters which may be set up as fixed or proportional bandwidth permitting users to optimize accuracy for varying slew rates. In addition to 1x and 2x, up to 6 other tracked orders are available per measurement channel.

Powerful Portable Analysis

Modern Architecture

Ultra Portable

SignalCalc Turbo on Quattro offers up to 4 input channels and one tachometer channel in a package that weighs less than a pound. It is powered by the USB connection to a host computer.

Modular and Expandable

SignalCalc Turbo on Abacus can be configured with a single module of 8 input channels and 2 tachometer channels. Each 8 channel module is powered by a 1 GFLOP DSP for high realtime performance. The use of 4 modules provides 32 input channels and 8 tachometers for measuring 8 different shaft speeds in one Abacus Chassis. When more than 32 channels are needed, multiple Abacus chassis are easily networked together to deliver an unlimited number of input channels. Special clock synchronization circuitry in this industry leading Abacus platform ensures perfect phase match regardless of number of input channels.

Integrated Recording and Playback Analysis

Vibration testing on steam and gas turbines is typically conducted under severe time constraints making it valuable if all relevant data can also be reliably recorded for future analysis. SignalCalc Turbo analyzers provide as an option, high-speed, high-capacity recording to disk. The Abacus based analyzer guarantees gap free recording of all input channels at all sampling rates regardless of the number of channels. Each Abacus chassis achieves an aggregate throughput rate of 20 MB/sec to the 250 GB internal hard disk. All recorded data may also be post processed in SignalCalc Turbo or by any measurement suite in the more general purpose SignalCalc dynamic signal analyzers. Tachometer data from all enabled tachometer channels are also recorded simultaneously with input data so that post processing for order analysis or RPM-based measurements relative to any of the tachometers may be made easily.

Data Physics Corporation

Discover more at 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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