Impaq Elite 4 Channel Signal Analyzer

New Standard for Advanced Sound & Vibration Test in the Field

Benstone INSTRUMENTS

www.benstone.com

- 6.4" VGA color touch screen (640 x 480)
- IP 65 rated, rugged housing made by dual material injection
- Compact flash card for unlimited data storage
- TI 6713 DSP for high speed real-time processing
- Powered by Microsoft WinCE system
- USB interface for convenient PC interface
- High capacity lithium-ion battery
- Optional analysis software modules
  - FFT spectrum analysis
  - Computed order tracking analysis
  - Octave spectrum analysis
  - Multi-plane rotor balancing
  - Raw data recording

Introduction

Impaq Elite is a portable 4 channel real-time analyzer that is built for advanced noise and vibration analysis in the field. Unique features like dual injection molding and protective sealing provide for IP 65 rating for measurement in harsh environments.

Impaq Elite is equipped with a large 6.4 inch color VGA (640 x 480) high resolution touch screen.

The combination of Microsoft's powerful WinCE operating system and touch screen operation make it very easy and intuitive to use.

Impaq Elite uses the fastest commercially available DSP chip TI 6713, performing signal analysis at extremely high real-time rate.

FFT Spectrum Analysis

Impaq Elite's touch screen display allows the user quick access to many functions on the FFT program. It supports cross channel analysis, which offers both the phase and amplitude information needed for advanced analysis. Also includes FRF, coherence, waterfall, time, power spectrum, complex spectrum and more. Ideal for your modal analysis, ODS or sound intensity measurements.

Computed Order Tracking

Measure varying speed machines with Elite's digital re-sampling technology to ensure accuracy of data. Amplitude and phase is accurately measured of specified orders during a coast down or start-up process. The order spectrum data can then be displayed on an intensity map, waterfall or polar plot.

Octave Spectrum Analysis

Measure 1/1, 1/3 or 1/12 octave spectrums utilizing real-time digital filtering technology with the Impaq Elite. Conforming to IEC 61260 and 61672 standards, the octave program is best suited for acoustic and vibration measurements in the field. The octave program can perform time domain integration and then transform the acceleration spectrum into a velocity or displacement spectrum for vibration measurements.

Rotor Balancing

In field rotor balancing made easy with the impaq Elite balancing kit. Simple, easy-to-use tools for calculating components, drill depth, 3 plane balancing and unequal radii.

Free Software Upgrades on purchased software. With ownership of your new Impaq Elite, you will receive unlimited free upgrades on purchased software. Simply connect your Elite via USB cable to your computer and the update manager will automatically keep your instrument up to date with the latest software release.

Free Reporting Software with data explorer. Data explorer provides powerful function for viewing data taken with your impaq Elite and easy-to-use reports in Microsoft Word.

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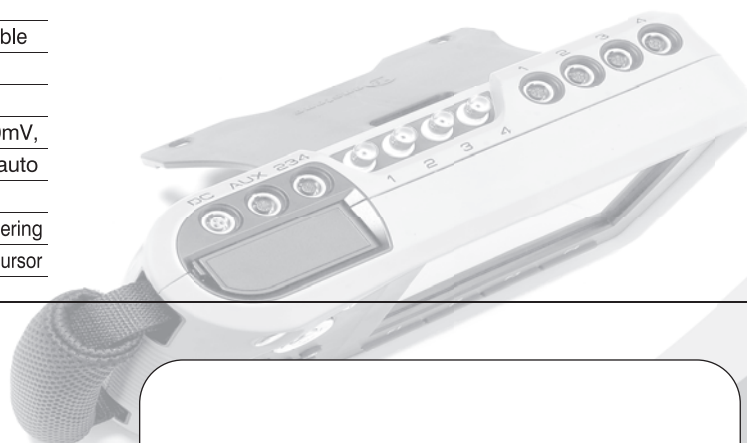| Hardware Feature	Technical Specifications
Operating system	Windows CE™
Number of input channels	4 analog channels and 1 auxilliary channel
Connector of input channels	Analog: 4 BNC connectors and 4 Lemo 7 pin connectors which support 200V microphones, Aux: 6 pin Lemo, Triaxial input: Lemo 4 pin connectors (channel 2, 3, 4)
Channel coupling	AC, DC, IEPE, 200V microphone, 0V microphone
Aux channel	TTL in (external trigger, TTL out, RS-232C)
DSP processor	TI TMS320C6713
External memory	Compact flash card
Battery	rechargeable Li-ion 8.4V 5400 mAhr, 8 hours continuous operation
PC communication interface	USB 1.1, mini B type USB connector
LCD display	640x480 6.4 inch TFT color touch screen LCD
Operating temperature	-10 deg C to + 60 deg C
Safety certifications	CE
Dust and waterproof	IP 65
Weight	4.5 lb (2.05 kg)
Size	11.2 in x 7.1 in x 3.0 in (284 x 180 x 76 mm)
Max input signal range	±20 Volt
Dynamic range	>90 dB
Frequency range	0 Hz to 40 kHZ
Feature for FFT Analysis	
FFT real-time rate	40 kHZ, single channel @12800 lines
FFT resolution	100-12,800 lines
Windows	Hanning, flattop, rectangular, force, exponential
Analysis functions	Complex spectrum, power spectrum, cross power spectrum, FRF, time waveform, orbit and coherence, waterfall
Engineering units	Automatic units transform with pre-defined table
Zoom FFT	Yes
Average	Linear, exponential, time, peak hold
Input signal range	± 10mV, ±20mV, ±50mV, ±100mV, ±200mV, ±500mV, ± 1V, ±2V, ±5V, ±10V, ±20 V, auto range, range up only
Trigger	External, input channel triggering, pre/ post triggering
Cursor	Single, harmonic, harmonic+ single, peak, mark cursor

Feature for Rotor Balancing	
Rotor type for balancing	Single plane, dual plane, overhung rotor (3 equal weights)
Balancing speed	60 rpm to 300,000 rpm
Order resolution	Low, normal, high, 0.03, 0.015, 0.008, and 0.004
Average number	10, 20, 50 and 100
Balancing grade	Built-in ISO 1940 standard or user defined
Tools	3 plane balancing (static and couple), unequal radii, component calculation, drill depth, vibration history, balancing history.
Feature for Computed Order Tracking	
Measurement types	Order trace, order spectrum and waterfall display
Rotation speed	6 rpm to 480,000 rpm
Order resolution	0.5, 0.25, 0.125 and 0.0624
Max. number of traces	User selectable 16 orders plus overall traces.
Max. order	800 order
Waterfall display	Adjustable waterfall plot and intensity plot
Waterfall cursor	RPM cursor and order cursor
Y-Axis of order traces	Linear, log, dB, real, image, phase and polar plot.
Feature for Octave Analysis	
Octave spectrum	Full octave, 1/3 octave and 1/12 octave
Maximum band with 4 channel on	Full octave: 32 kHz, 1/3 octave: 10 kHz, 1/12 octave: 5 kHz
Maximum band with 1 channel on	Full octave: 32 kHz, 1/3 octave: 40 kHz, 1/12 octave: 20 kHz
Integration time (second)	1/128, 1/64, 1/32, 1/16, 1/8, 1/4, 1/2, 1, 2, 4
Detection method	Fast, slow, impulse, linear
Trigger sources	Off, external, input channels, manual
Weighting	A, C or flat
Conformed standards	IEC 61260 and 61672

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