vb7®

Easy, efficient two-channel vibration analyzer

The vb7® analyzer offers the power and convenience of dual-channel measurement and dual-plane balancing. Its balancing functions enable quick diagnosis and correction of dynamic unbalance, the most common form of unbalance. The vb7® analyzer's combination of accuracy, intuitive operation, ease of use, and outstanding storage capacity ensures the instrument delivers a premium return on investment. Purchase of a vb7® includes the powerful, award-winning Ascent® software.

Ascent® Level 2 enables you to program your instrument with thousands of separate machine definitions, covering a number of route choices. A library of over 300 customizable parameter sets is also available, enabling a vast array of measurement options.

Key features

Ascent® Level 2 software:

- Route enabled - Build routes in Ascent® and send these to your instrument
- CBDb - Commtest Bearing Database with over 30 000 bearings
- Waveform analysis tools - Perfect for power users
- Technical Associates Proven Method – for effortless setup of measurements and alarm levels

Enhanced instrument functionality:

- 2-channel simultaneous recordings
- Wide measurement range - 1 000 g, 25 000 mm/s, 2 500mm
- 2 plane balancing
- Unique Commtest 6Pack™ recording system
- ≥ 95 dB dynamic range
- Support for 12 800 lines FFT resolution
- Support for 80 kHz Fmax
- 1 GB memory – Virtually unlimited spectra and waveform storage
- Laser speed sensor for automatic capture of machine running speed
- Keyphasor® tach mode
- Option to add Flex features like Modal Impact Testing, Remote Comms and Wi-Fi
- Upgradable Proflash system and free firmware updates for 5 years
- 5 year warranty on the instrument hardware

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SPECIFICATIONS	vb7® DATA ANALYZERS	REMARKS
Sensor Input		
Sensor input	2 channels	Simultaneous sampling
Compatible sensor types	Accelerometer, velocity, displacement, current	
AC coupled range	16 V peak-peak	Allows for ± 8 V sensor output swing (± 80 g)
DC coupled ranges	0 V to 20 V, -10 V to 10 V, -20 V to 0 V	E.g. for reading prox-probe gap
Connectors	2 x BNC (CH1/CH2)	Safety feature: Break-free inline connector
Analog to digital conversion	24-bit ADC	
Sensor excitation current	0 mA or 2.2 mA (configurable), 24 V maximum	2.2 mA required for ICP®-type accelerometer
Sensor detection	Warns if short circuit or not connected	
Tachometer		
Sensor	Laser sensor with reflective tape	Sensor triggers on beam reflection
Laser sensor range	10 cm to 2 m nominal	Depends on size of reflective tape
Other Sensor types supported	Contact, TTL pulse, Keyphasor®	Optically isolated input
Power supply to sensor	5 V, 50 mA	
TTL pulse rating	3.5 V (4 mA) min, 28 V (5 mA) max, off-state 0.8 V	
Keyphasor® thresholds	7.7 ± 0.5 V, 13.2 ± 0.8 V, 18.5 ± 1 V	Nominally 8 V, 13 V, 18 V
Speed range	10 to 300 000 RPM (0.2 to 5 kHz)	Pulse width at least 0.1 ms
Accuracy	+/- 0.1%	
Output to drive strobe	Up to 140 Hz (8400 CPM)	Typical. Depends on strobe type. Special cable required.
Parameter Indication		
Maximum levels	> 1000 g (10 000 m/s2) > 1000 in/sec (25 000 mm/s) > 100 in (2500 mm), > 10 000 amps	Effective limit is sensor sensitivity and output voltage
Dynamic signal range	> 95 dB (typical at 400 line resolution)	
Harmonic distortion	Less than -70 dB typical	Other distortions and noise are lower
Units	g or m/s2 in/s or mm/s mil or mm or µm adB, vdB, amps, user-defined	0-peak, peak-peak or RMS. Auto-scale by 1000x when required US & SI options for both adB & vdB
Magnitude & cursors	Overall RMS value, dual cursors, harmonics	Digital readouts on chart
Base accuracy	± 1% (approx. 0.1 dB)	For DC level: % of full scale. For AC signal: % of reading
High frequency attenuation	≤ 0.1 dB 100 Hz to 10 kHz ≤ 3 dB ›10 kHz to 40 kHz	Attenuation tolerances are in addition to base accuracy
AC coupling attenuation	≤ 0.1 dB 10 Hz to ‹100 Hz ≤ 3 dB 1 Hz to ‹10Hz	
Attenuation due to Integration	≤ 0.1 dB 1 Hz to ‹100 Hz ≤ 1.5 dB 0.2 Hz to ‹1 Hz ≤ 0.1 dB 10 Hz to ‹100 Hz ≤ 1.5 dB 1 Hz to ‹10 Hz	Low freq. mode: When coupling = DC, Fmax ≤ 100 Hz. Normal mode: Applicable in all other cases. Values apply to single integration (accel. to veloc.). Double the values for double integration (accel. to displ.).
Spectrum Display		
Fmax ranges	25, 50, 100, 125, 150, 200, 300, 400, 500, 600, 800, 1000, 1200, 1600, 2000, 2500, 3000, 4000, 5000, 6000, 8000, 10 000, 15 000, 20 000, 30 000, 40 000 Hz	Or equivalent CPM values Or orders-based from 1X to 999X
Fmin possible range	0 to Fmax	Instrument zeroes all spectral lines below Fmin
Resolution	400, 800, 1600, 3200, 6400 lines	3200 lines max. for dual channel measurements
Frequency scale	Hz, CPM, Orders	Linear scale with zooming
Amplitude scale	Acceleration, velocity, displacement or current	Linear or log scales, auto or manual scaling
Window shapes	Hanning, rectangular	
Overlap	(0, 12.5, 25, 37.5, 50, 62.5, 75, 87.5) %	Dependent on Fmax and number of lines
Number of averages	1, 2, 4, 8, 16, 32, 64, 128	Increases sampling time proportionally
Averaging types	Linear, exponential, peak hold, synchronous	

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Spectrum Display Continued		
Demodulation bandwidths	23 bandwidth options	From 125 Hz to 1250 Hz up to 16 kHz to 20 kHz
6Pack	Up to 40 kHz & 3200 lines 1 channel Up to 20 kHz & 1600 lines 2 channel	Spectrum and waveform for low freq, high freq, demod.
Order tracking	Up to 6 kHz Fmax, Orders-based	Tachometer required, mounted on high-speed shaft
Order tracking - Distortion	Less than -65 dB	Within 50% to 200% speed variation during recording
Waveform Display		
Number of samples	1024, 2048, 4096, 8192, 16 384	
Time scale	10 ms to 256 seconds	Or orders based from 1 to 999 revs
Time synchronous averages	1, 2, 4, 8, 16, 32, 64, 128	Only available when tachometer triggered
Long time waveform Fmax	25 Hz to 40 kHz	20 kHz dual channel
Long time waveform duration	14.7 million samples (total over channels)	E.g. for Fmax 1 kHz, Fsample = 2.56 kHz and Duration= 1.6 hrs
Logging & Analysis		
Output formats	LCD screen, Ascent, XML	
Data storage	Dual 1 GB non-volatile flash memories	Database mirror copy on second flash memory
Data storage structure	Folders / machines / points / locations / routes	No limits are applied, 50 character names
Max Folder size	10 000 measurement locations	
Balancing		
Planes	Up to 2 planes, 2 sensors	
Speed range	30 to 60 000 RPM	
Measurement type	Acceleration, velocity, displacement	
Weight modes	Angle 0° to 360°, fixed position, circumference arc	E.g. weights on fan blades, linear dist. around circumference
Remove trial weights	Yes, No	Automatic recalculation
Manual data entry	Yes	Allows re-entry of previous balance jobs
Storage	Against machines in data structure	No limits applied
Display & Communication		
Display	Graphic Grayscale LCD	White LED Backlight
Resolution & size	480 x 320 (HVGA), 5.5" (140 mm)	Readable in direct sunlight
Supported Languages	Eng, Chi, Fre, Ger, Jap, Por, Rus, Spa	Firmware releases in English, translations follow
Communication with PC	USB and Ethernet (Wi-Fi optional)	PROFLASH allows instrument software to be upgraded
USB host port	USB 2.0, supplying 5V, 250mA	Save folders to USB flash drive
Battery & Charger		
Battery type	Custom Lithium Ion pack, 7.4 V, 4500 mAh	
Operating time	10 hours	Backlight on (60 second time-out)
Charger type	Internal charging, automatic control	External power pack 12 V DC, 3 A output
Charge rate	3 A nominal	3 hours for complete charge
Mechanical		
Size	9.9" W x 5.8" L x 2.4" H (252 x 148x 60) mm	
Weight	2.7 lb (1.2 kg)	Including battery and strap
Environmental		
Operating temperature	14 °F to 122 °F (-10 to 50) °C	
Storage temperature & humidity	-4 °F to 140 °F (-20 to 60) °C, 95% RH	If storage exceeds 1 month: Up to 95 F (35 C), 85% RH
EMC	EN61326	
Ruggedness	4' (1.2 m) drop onto concrete, IP65	Procedure: 26 drops following MIL-STD-810F-516.5-IV
Hazardous locations	CSA Class I, Division 2 (Groups A, B, C, D)	
Certification	CE	

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