

vb8[®]

The complete four-channel vibration analysis package



The vb8[®] analyzer is a uniquely sophisticated and feature-packed instrument that remains intuitive in operation and flexible enough to suit every level of vibration analysis, from novice through to expert.

The Ascent[®] software included contains the collective experience of over 25 years of expert in-depth machine fault analysis.

1. Users with no prior experience or without a previously recorded vibration history can now establish a measurement program utilizing proven baseline values from ISO standards and The Proven Method from Technical Associates.
2. Experienced users can now generate meaningful spectral alarm bands automatically rather than just relying on basic overall alarms or spectral band guesswork.
3. Veteran analysts can now objectively evaluate and compare their findings against a time-tested and proven historical foundation.

Key features

Ascent[®] Level 2 software:

- Fully automated measurement parameter and alarm setups based on The Proven Method from Technical Associates
- ISO 2372 and 10816 standards

Enhanced instrument functionality:

- 4 channel simultaneous recordings
- Triax-enabled
- 12 800 lines FFT resolution
- 80 kHz Fmax
- 1GB memory – Virtually unlimited spectra storage
- Modal Impact Testing & Cross Channel Spectrum (ODS)
- Ability to export data in Universal File Format (UFF) for additional analysis in ODS software such as Vibrant Technology ME'scope
- Support for acceleration, velocity, displacement, DC-coupled, current and voltage output sensors
- Simultaneous acquisition – 2 plane balancing with up to 4 sensors
- Unique Commtest 6Pack™ recording system
- Numeric parameter input via keypad with Ascent[®] trend and alarm capability
- Option to add Flex features like Remote Comms & Wi-Fi
- Cable Test mode
- Upgradable Proflash system and free firmware updates for 5 years

SPECIFICATIONS	vb8® DATA ANALYZER	REMARKS
Sensors		
Sensor input	4 channels	Simultaneous sampling
Compatible Sensor Types	Accelerometer, velocity, displacement, current, voltage output, 4 to 20 mA	
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	1 x BNC (CH1) 1 x LEMO (CH2/CH3/CH4)	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, 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®	Instrument has 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 Hz 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/s ²) > 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/s ² or adB in/s or mm/s or vdB mil or mm or µm 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, waveform true pk-pk, 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, 60 000, 80 000 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, 12 800 lines	6400 lines max. for 2-channel measurements. 3200 lines max. for 4-channel measurements.
Frequency scale	Hz, CPM, Orders	Linear scale with zooming
Amplitude scale	Acceleration, velocity, displacement, current, or user-defined	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 Cont.		
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 3 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, 32 768	
Time scale	10 ms to 512 seconds	Or orders based from 1 to 999 revs
Time synchronous averages	1, 2, 4, 8, 16, 32, 64, 128	Only available when tach. triggered
Long time waveform Fmax	25 Hz to 40 kHz Fmax	20 kHz 2- or 4-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	Instrument screen, transfer to Ascant®, XML, UFF	
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 applied, 50 character names
Max folder size	10 000 measurement locations	
Modal analysis	CH1 for hammer, up to 3 response channels, ≤ 40 kHz	Coherence & FRF (Acceleration/Mobility/Compliance)
Cross channel spectrum	1 reference, up to 3 other sensors	Coherence & FRF for importing into ODS software

Balancing		
Planes	Up to 2 planes, 4 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 distance 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)	Use PROFLASH to upgrade
USB host port	USB 2.0, supplying 5V, 250 mA	Save folders to USB flash drive
UFF export	Spectra, Coherence, FRF mag. & phase	Universal File Format for Modal & FRF data

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 95F (35 C), 85% RH
EMC	EN61326	
Ruggedness	4' (1.2m) drop on 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	