# 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
- Support for 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
- Large, high resolution (HVGA) backlit LCD
- 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
- Cable Test mode
- Upgradable Proflash system and free firmware updates for 5 years

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| 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)<br>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, 13.3 ± 0.8 V, 18.8 ± 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/s2)<br>> 1000 in/sec (25 000 mm/s)<br>> 100 in (2500 mm),<br>> 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 or adB<br>in/s or mm/s or vdB<br>mil or mm or µm<br>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<br>≤ 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<br>≤ 3 dB 1 Hz to <10Hz | |
| Attenuation due to Integration | ≤ 0.1 dB 1 Hz to <100 Hz<br>≤ 1.5 dB 0.2 Hz to <1 Hz<br>≤ 0.1 dB 10 Hz to <100 Hz<br>≤ 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<br>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 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 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 Ascent®, 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, ≤ 10 kHz | Coherence & FRF (Accelerance/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, FRE, SPA, POR, RUS, CHI | Firmware releases in English, translations follow |
| Communication with PC | USB and Ethernet | 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 | |

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