

vbTM

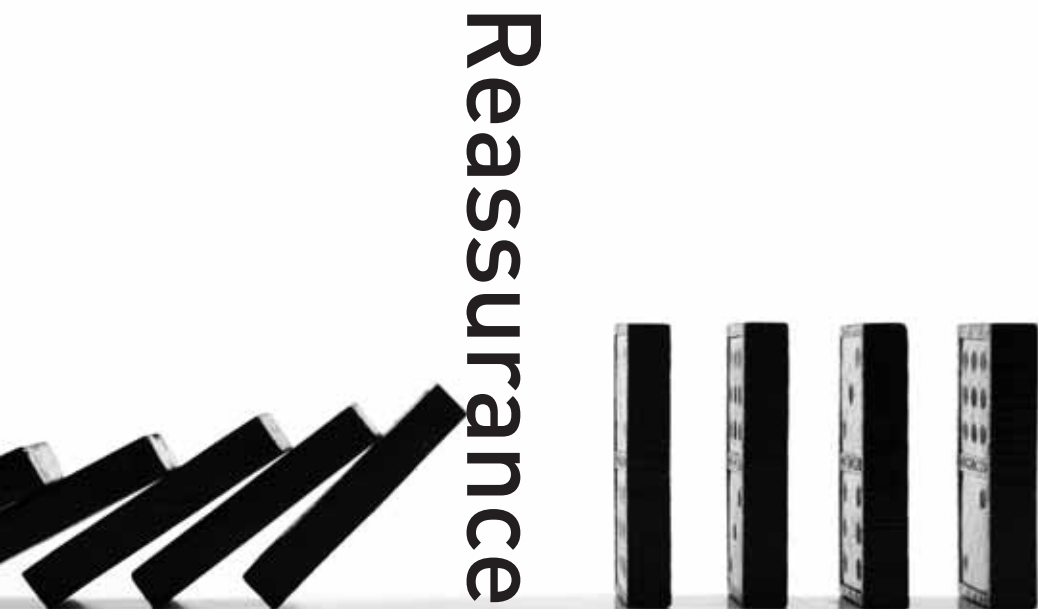


commtest
The Revolution

vbSeries®

Portable vibration data collection is for many the first step towards enhanced peace of mind and enhanced profitability both achieved through an intelligent approach to maintenance engineering.

Adopt the vbSeries® of vibration analysis equipment along with Ascent® software as part of your predictive maintenance program; it is the simplest and most effective means of obtaining the data to accurately identify, pinpoint and address potential problems and keep your machinery running safely, efficiently and reliably.

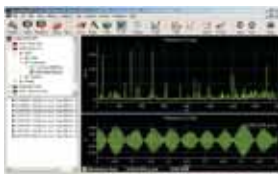


vb3000™



The complete vibration analysis package

The vb3000 is an all-in-one tool suitable for every level of vibration analyst, from novice through to expert. The Ascent software contains the collective experience of over 25 years of expert in-depth machine fault analysis.



Users with no prior experience or without previously recorded vibration history can now establish a measurement program utilizing proven baseline values from ISO standards and "The Proven Method" from Technical Associates.*



Experienced users can now generate meaningful spectral alarm bands automatically rather than just relying on basic overall alarms or spectral band guesswork. Statistical alarm creation ensures that families of similar machines are compared consistently against developing trends.

Veteran analysts can now objectively evaluate and compare their findings against a time-tested and proven historical foundation. Statistical alarm editing and adjusting ensures the alarms remain fine-tuned for maximum usefulness.

Supplied with Ascent software



Ascent Level 2 software:

- Fully automated measurement parameter and alarm setups based on "The Proven Method" from Technical Associates*
- ISO 2372 and 10816 standards
- Orbit and Bode plots
- Waveform analysis tools – perfect for the power user
- User-designable SQL/HTML reports – unlimited reporting flexibility
- Statistical alarm creation and adjustment

Enhanced instrument functionality

- 6400 line FFT resolution
- 16 384 sample waveforms
- 40 kHz Fmax
- 32 MB memory - store up to 11 000 spectra in the vb instrument
- Cross channel phase analysis
- Long time waveform recording - up to 18 hours
- Support for acceleration, displacement, velocity and current sensors

On-site printing requires the purchase of an optional thermal printer.

* The incorporation of "The Proven Method" is available exclusively in Ascent software

vb2000™



Easy and efficient two channel capability

The vb2000 offers the extra power and convenience of dual-channel measurement and two accelerometers. It enables quick diagnosis and correction of dynamic imbalance, the most common form of imbalance. Combined with the ability to print balancing reports on site the vb2000 delivers a premium return on investment. The vb2000 includes the powerful Ascent software in the purchase price.



Ascent Level 1 software enables you to program the vb instrument with up to 780 separate machine definitions covering up to 240 different route choices. A library of over 200 customizable parameter sets is also available enabling a vast array of measurement options.



Supplied with Ascent software

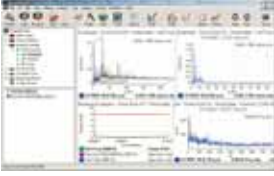


vb2000 bundle

- Route enabled – build routes in Ascent software and send to the vb instrument
- CBDb – Commtest Bearing Database with over 30 000 bearings
- Efficient two channel operation
- Dual-plane balancing with printable reports
- Two accelerometers included in the purchase price
- Laser speed sensor for automatic capture of machine running speed
- 8 MB memory – store up to 8000 spectra in the vb instrument
- ≥ 95 dB dynamic range
- 20 kHz Fmax
- 3200 line FFT resolution
- Process parameter input via keypad with trend and alarm capability in Ascent software
- “Commtest Care” including 5 year warranty on the vb instrument

On-site printing requires the purchase of an optional thermal printer.

vb1000™

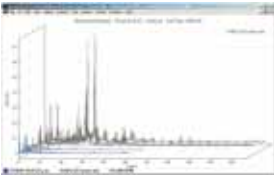


The economical 2-in-1 solution for the reliability engineering professional

Combining vibration analysis and imbalance correction, the vb1000 is a single channel route-enabled product that provides everything you need for routine data collection and analysis, and adds single-plane balancing to deliver effective fault correcting capability. The vb1000 includes the powerful Ascent software in the purchase price.



Ascent Level 1 software enables you to program the vb instrument with up to 780 separate machine definitions covering up to 240 different route choices. A library of over 200 customizable parameter sets is also available enabling a vast array of measurement options.



vb1000 bundle

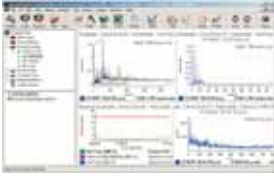
- Route enabled – build routes in Ascent software and send to the vb instrument
- CBDb – Commtest Bearing Database with over 30 000 bearings
- Single channel operation
- Single-plane balancing with printable reports
- One accelerometer included in the purchase price
- Laser speed sensor for automatic capture of machine running speed
- 8 MB memory – store up to 8000 spectra in the vb instrument
- ≥ 95 dB dynamic range
- 20 kHz Fmax
- 3200 line FFT resolution
- Process parameter input via keypad with trend and alarm capability in Ascent software
- “Commtest Care” including 5 year warranty on the vb instrument

Supplied with Ascent software



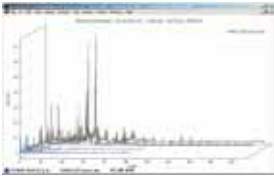
On-site printing requires the purchase of an optional thermal printer.

vb1000v™

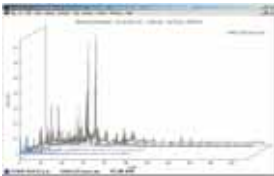


Economical, easy to operate advanced vibration data collector, analyzer and software

The vb1000v is a single channel route-enabled product that provides everything you need for route-based data collection and analysis, including the powerful Ascent software, all included in the purchase price.



Ascent Level 1 software enables you to program the vb instrument with up to 780 separate machine definitions covering up to 240 different route choices. A library of over 200 customizable parameter sets is also available enabling a vast array of measurement options.



vb1000v bundle

- Route enabled – build routes in Ascent software and send to the vb instrument
- CBDb – Commtest Bearing Database with over 30 000 bearings
- Single channel operation
- One accelerometer included in the purchase price
- Laser speed sensor for automatic capture of machine running speed
- 8 MB memory – store up to 8000 spectra in the vb instrument
- ≥ 95 dB dynamic range
- 20 kHz Fmax
- 3200 line FFT resolution
- Process parameter input via keypad with trend and alarm capability in Ascent software
- “Commtest Care” including 5 year warranty on the vb instrument

Supplied with Ascent software



vb1000b™

Calculate ISO1940 balance	
1	Rotor Weight 100 kg
2	Rotor Diameter 100 mm
3	Rotor Speed 50.0 Hz
4	ISO Balance G1.00
Maximum residual 6 g	
6	Select mass units
7	Select diameter units
8	Select speed units
9	Residual weight units
ENTER Continue	

Suggest Trial Weight	
1	Rotor Weight 100 lb
2	Rotor Diameter 10.00 in
3	Rotor Speed 600 RPM
Suggested Weight 3.13 oz	
6	Select mass units
7	Select diameter units
8	Select speed units
9	Suggested weight units
ENTER Continue	

Dual-plane imbalance correction package

A compact, rugged, dynamic balancing instrument capable of solving any dual-plane balancing problem with ease. Lightweight and extremely portable, the vb1000b is easily carried on site to any problematic machine.

Imbalance causes high levels of mechanical stress and vibration that are transferred directly to the bearings resulting in a proportional reduction in normal bearing life.

With a few basic parameters the vb1000b calculates acceptable imbalance levels to ensure machinery operates within international ISO 1940 guidelines.

Other calculations available:

- Trial weight – automatically suggested mass value for increased accuracy and efficiency
- Split weights – allows a correction weight normally specified at a particular angle to be split and applied at alternative angles
- Combine weights – calculates combined mass values for a specified correction angle
- Change radius – calculates the change required for the correction mass at a given radius

Setup

The vb1000b setup is minimal, quick and easy. Only a few calibration runs are required, with or without removing your trial weight.

Memory

The vb1000b stores your previous balance run data. No need to waste valuable time performing calibration runs on repetitive or routine balance jobs.

Balance

Imbalance is computed quickly and the display indicates the angular position for weight correction.

Reporting

Balancing reports, including customer and machine details, can be transferred to your favorite reporting application using Commtest's "Report Grabber" utility.

SPECIFICATIONS	COMMON TO MOST MODELS	REMARKS	vb3000	vb2000	vb1000	vb1000v
Sensor Input Accelerometer Connector Input impedance Voltage swing Sensor excitation current Sensor excitation voltage Sensor detection	2-wire, low impedance piezoelectric. Sensitivity 100 mV/g nominal BNC > 100 kΩ 16 V peak-peak 0 mA or 2.2 mA (configurable) 24 V maximum Warns if short circuit or not connected	Commonly termed 'ICP@ type'. Sensitivity 8.5 mV/g to 2300 mV/g Safety feature: Break-free inline connector AC coupled input, allows for a 8 V sensor output swing (± 80 g) 2.2 mA required for ICP@ type accelerometer At sensor terminals with sensor attached Warns on channel 1 only on dual channel instruments	Sensor Input Number of channels: 2 Velocity sensors: 100 mV/in/s (4 mV/mm/s) nominal Sensitivity (8.5 to 2300) mV/in/s = (0.34 to 90.55) mV/mm/s Displacement sensors: 100 mV/mil (4 mV/μm) nominal Sensitivity (8.5 to 2300) mV/mil = (0.34 to 90.55) mV/mm Current sensors: 100 mV/Amp nominal Sensitivity (0.1 to 2300) mV/Amp	Number of channels: 2	Number of channels: 1	Number of channels: 1
Tachometer Sensor Laser sensor range Sensor supply Input type Pulse rating Speed range Display	Laser sensor with reflective tape included in kit 10 cm to 2 m nominal 7.2 V nominal 6.0 V to 9.5 V instrument battery Optically isolated, accepts TTL pulse 2.5 V (4 mA) min, 10 V (27 mA) max, off-state < 0.8 V 30 RPM to 65 000 RPM (0.5 Hz to 1.08 kHz) RPM, Hz, 1X amplitude and phase angle	Sensor triggers when the tape reflects its beam Dependent on size of reflective tape Available to power sensor. Protected by 0.1 A PTC Triggers on negative edge For selected amplitude type, phase angle in degrees				
Parameter Indication Displays Maximum levels Dynamic signal range Harmonic distortion Units Graph types Magnitude display Cursors Accuracy Frequency response	Acceleration, velocity, displacement, demodulation ± 80 ± (600 m/s ²) ± 4 in/sec (100 mm/s), ± 400 mil (10 mm) ≥ 95 dB (typical at 400 line resolution) Less than -70 dB typical g or m/s ² , in/s or mm/s, mil or mm or μm A dB, VdB Spectrum (freq domain), waveform (time domain) Overall rms value, cursor-position value Standard cursor Dual cursors Harmonic cursor ± 1% (0.1 dB) ± 0.1 dB from 10 Hz to 15 kHz; ± 3 dB from 1 Hz to 20 kHz	User selectable Q-peak. Typical, dependent on individual calibration Acceleration and velocity. Greater with higher resolution and averaging Dependent on input level and type. Other distortions and noise are lower Q-peak, peak-peak or rms A dB ref. 1 μg rms, VdB ref. configurable 1.0e-5 mm/s rms or 1.0e-6 mm/s rms Solid histogram for spectrum, line graph for waveform Digital readout on chart Vary x position to display x and y values Lock standard cursor as reference and display difference Up to 32 whole-number multiples of standard-cursor frequency Measured at 100 Hz, 23 ± 5 °C, 400 lines, 400 Hz range Acceleration and velocity. From value measured at 100 Hz	Parameter Indication Also displays current Maximum levels includes ± 800 Amps Units include Amps Warns of % change in overall since baseline; Tolerances: Tight 50% to 150%, relaxed 25% to 200%			
Spectrum Display Fmax possible ranges Fmin possible range Resolution Frequency scale Amplitude scale Window shapes Overlap Number of averages Averaging types Demod bandwidths	0 to [100, 125, 150, 200, 300, 400, 500, 600, 800] Hz 0 to [1, 1.2, 1.4, 2, 2.5, 3, 4, 5, 8, 10, 15, 20] kHz 0 to Fmax 400, 800, 1600, 3200 lines (configurable) Hz, CPM, orders Acceleration, velocity or displacement Hanning, rectangular (0, 12.5, 25, 37.5, 50, 62.5, 75, 87.5) % 1, 2, 4, 8, 16, 32, 64, 128 Linear, exponential, peak hold, synchronous 20 bandwidth options	Or equivalent CPM values Or orders-based from 1X to 30 000X vb instrument zeroes all spectral lines below Fmin 1600 lines maximum for dual channel measurements Linear scale. Can zoom in to display individual spectral lines Linear or log scales Dependent on Fmax and number of lines Increases sampling time proportionally From 125 Hz to 1250 Hz up to 16 kHz to 20 kHz	Spectrum Display Fmax possible ranges includes 30 kHz and 40 kHz Resolution up to 6400 lines 3200 lines maximum (dual channel) Amplitude scale includes current			
Waveform Display Number of samples Time scale Time synchronous averages	1024, 2078, 4096, 8192 10 ms to 32 seconds/1 rev to 30 000 revs 1, 2, 4, 8, 16, 32, 64, 128	Only available when tachometer triggered	Waveform Display Number of samples: Up to 16 384 Long time waveform: Up to 15 kHz Fmax Up to 18 hours duration or until memory full			
Keypad Entry Prompt and unit strings Input value range	16 characters each ± 59 999					
Time Intervals Measuring time in seconds (example ranges) Typical measure and record	Range 0 Hz to 100 Hz 400 0 Hz to 800 Hz 0.5 0 kHz to 4 kHz 0.1 0 kHz to 20 kHz 0.02 5 seconds for 1600 lines, 1600 Hz, 8 averages, 50% overlap	Dependent on number of lines and number of averages (values shown in table for no overlap, no averaging, maximum display update of 4 per second)	Time Intervals Range 0 Hz to 100 Hz 6400 0 Hz to 800 Hz 8 0 kHz to 4 kHz 1.6 0 kHz to 40 kHz 0.16			
Trigger Modes Logging Features Output formats Data storage Data storage format	Single (key press), free run vb screen, transfer to Ascent PC-based software 8 MB non-volatile Up to 30 folders Up to 200 named machines per folder Up to 780 named machines for all folders Up to 30 multi-spatial points per machine Up to 8 routes per folder	Trigger status displayed (busy, done, run, stop)	Logging Features Data storage: 32 MB non-volatile Total of 11 000 spectra at 800 line resolution or 4000 spectra at 3200 line resolution			
Balancing Speed range Measurement type Min and Max values Weight modes Remove trial weights Filter bandwidths Manual data entry Storage	30 RPM to 60 000 RPM Acceleration, velocity, displacement (0.0004 to 4) in/s = (0.01 to 100) mm/s Angle 0° to 360°, fixed position, circumference arc Yes, No 15 CPM, 150 CPM Yes 10 balance jobs total	Q-peak. Typical, dependent on calibration e.g. attach weights on fan blades, linear distance around circumference Allows re-entry of previous balance jobs	Balancing Planes 1, 2	Planes 1, 2	Planes 1	No balancing capability
Display Resolution Viewing area Backlight	Graphic LCD 240 x 128 pixels 4.3" x 2.3" (110 x 60) mm Electro-luminescent					
PROFLASH	Allows vb firmware to be upgraded via serial comms	Download firmware service packs via the Internet				
Communications Baud rate	RS232 57 600 bits per second					
Battery Type Voltage Capacity Operating time (typical)	Custom Nickel-Cadmium pack 7.2 V nominal 1500 mAh nominal 12 hours with backlight off, 7 hours with backlight always on	Typically 9 hours with 20 second timeout				
Charger and Conditioner Charge rate Discharge rate	Integral charger – automatic and manual control 0.7 A nominal 0.5 A nominal	Power transformer with 13.5 V ± 1.5 V DC, 1 A output included in kit 2.5 hours for complete charge nominal Combats NiCad battery memory effect				
Mechanical Size Weight	9.7" W x 6.1" L x 3.0" H (247 x 154 x 75) mm 4.4 lb (2 kg)	Including protective boot Including protective boot and strap				
Environmental Temperature/Humidity Operating Storage EMC	32 °F to 122 °F (0 to 50) °C 80% RH 32 °F to 86 °F 70% RH 86 °F to 122 °F 14 °F to 140 °F (-10 to 60) °C 95% RH EN55022, CISPR22 EN55024, CISPR24	Optional IP65 sealing version available Non-condensing Non-condensing Radiated and conducted emissions RF field, ESD and fast transient immunity				

SPECIFICATIONS	vb1000b	REMARKS
Sensor Input Number of channels Accelerometers Velocity sensors Displacement sensors Connector Input impedance Voltage swing Sensor excitation current Sensor excitation voltage Sensor detection	2 2-wire, low impedance piezoelectric, 100 mV/g nominal 100 mV/in/s (4 mV/mm/s) nominal 100 mV/mil (4 mV/ μ m) nominal BNC > 100 k Ω 16 V peak-peak 0 mA or 2.2 mA (configurable) 24 V maximum Warns if short circuit or not connected	Commonly termed 'ICP® type' Sensitivity (8.5 to 2300) mV/g Sensitivity (8.5 to 2300) mV/in/s = (0.34 to 90.55) mV/mm/s Sensitivity (8.5 to 2300) mV/mil = (0.34 to 90.55) mV/ μ m Safety feature: Break-free inline connector AC coupled input, allows for \pm 8 V sensor output swing (\pm 80 g) 2.2 mA required for ICP® type accelerometer At sensor terminals with sensor attached Channel 1 only
Tachometer Input Sensor Laser sensor range Sensor supply Input type Pulse rating Speed range	Laser sensor with reflective tape included in kit 10 cm to 2 m nominal 7.2 V nominal 6.0 V to 9.5 V instrument battery Optically isolated, accepts TTL pulse 2.5 V (4 mA) min, 10 V (27 mA) max off-state < 0.8 V 30 RPM to 65 000 RPM (0.5 Hz to 1.08 kHz)	Sensor triggers when the tape reflects its beam Dependent on size of reflective tape Available to power sensor. Protected by 0.1 A PTC Triggers on negative edge
Parameter Indication Measurement types Maximum levels Minimum levels Units Accuracy Frequency response	Acceleration, velocity, displacement \pm 80 g (800 m/s ²), \pm 4 in/sec (100 mm/s), \pm 400 mil (10 mm) 0.01 g (0.1 m/s ²), 0.0004 in/s (0.01 mm/s), 0.01 mil (0.2 μ m) g or m/s ² , in/s or mm/s, mil or mm or μ m \pm 1% (0.1 dB) \pm 0.1 dB from 10 Hz to 15 kHz; \pm 3 dB from 1 Hz to 20 kHz	User selectable \emptyset -peak. Typical, dependent on individual calibration \emptyset -peak. Typical, dependent on machine RPM \emptyset -peak, peak-peak or rms Measured at 100 Hz, 23 \pm 5 °C Acceleration and velocity. From value measured at 100 Hz
Balancing Planes Speed range Measurement type Weight modes Remove trial weights Filter bandwidths	1, 2 30 RPM to 60 000 RPM Acceleration, velocity, displacement Angle 0° to 360°, fixed position, circumference arc 2 equal weights, 3 equal weights Yes, No 15 CPM, 150 CPM	e.g. attach weights on fan blades, linear distance around circumference e.g. for balancing specialized grinders
Logging Features Output formats Data storage Data storage format	Text format via serial comms 200 balance jobs 200 named machines	Can be pasted into spreadsheet programs. Includes machine name, date and time, run plane, amplitude, unit and phase User-specified machine names (16 characters) entered from vb keypad
Spectrum Display Fmax possible ranges Fmin possible range Spectrum parameters Spectrum averaging Frequency scale Amplitude scale Magnitude display Cursors Channel selection	0 to (100, 125, 150, 200, 300, 400, 500, 600, 800, 1000, 1200) Hz 0 to Fmax 800 lines, Hanning window 4 x linear, 50% overlap Hz, CPM Acceleration, velocity or displacement Overall rms value, cursor-position value Standard cursor Dual cursors Harmonic cursor Channel 1 or channel 2	Or equivalent CPM values vb instrument zeroes all spectral lines below Fmin Linear scale. Can zoom in to display individual spectral lines Linear or log scale Digital readout on chart Vary x position to display x and y values Lock standard cursor as reference and display difference Up to 32 whole-number multiples of standard- cursor frequency Single channel recordings

Revised May 2006. While every effort has been made to provide the most accurate information we advise that information in this document may contain technical inaccuracies or typographical errors. Commtest Instruments Ltd may at any time and without notice make improvements and/or changes in the products described in this information.

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