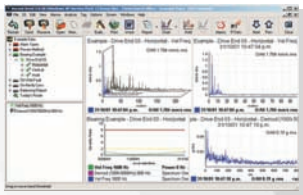
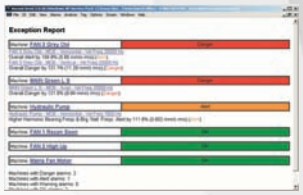
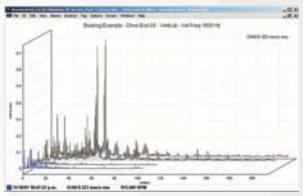
vb1000™

THE ECONOMICAL 2-IN-1 SOLUTION FOR THE PROACTIVE MAINTENANCE PROFESSIONAL







Suplied with **Ascent** software

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 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.

Ascent Level 1 software

- Route enabled – build routes in **Ascent** 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 capability
- "Commtest Care" including 5 year warranty on the **vb** instrument

On-site printing requires the purchase of an optional thermal printer. Please see your local Commtest reseller for details.

SPECIFICATIONS	MODEL **vb**1000	REMARKS
Accelerometer Input		
Number of channels	1	
Type	2-wire, low impedance piezoelectric	Commonly termed 'ICP® type'
Sensitivity	100 mV/g nominal	Calibration adjustable 8.5 mV/g to 2300 mV/g
Connector	BNC	Safety feature: break-free inline connector
Input impedance	> 100 kΩ	
Voltage swing	16 V peak-peak	AC coupled input, allows for ± 8 V sensor output swing (± 80 g)
Sensor excitation current	0 mA or 2.2 mA (configurable)	2.2 mA required for ICP® type accelerometer
Sensor excitation voltage	24 V maximum	At sensor terminals with sensor attached
Sensor detection	Warns if short circuit or not connected	
Tachometer		
Sensor	Laser sensor with reflective tape included in kit	Sensor triggers when the tape reflects its beam
Laser sensor range	10 cm to 2 m nominal	Dependent on size of reflective tape
Sensor supply	7.2 V nominal 6.0 V to 9.5 V instrument battery	Available to power sensor. Protected by 0.1 A PTC
Input type	Optically isolated, accepts TTL pulse	
Pulse rating	2.5 V (4 mA) min, 10 V (27 mA) max, off-state < 0.8 V	Triggers on negative edge
Speed range	30 RPM to 65 000 RPM (0.5 Hz to 1.08 kHz)	
Display	RPM, Hz, 1X amplitude and phase angle	For selected amplitude type, phase angle in degrees
Parameter Indication		
Displays	Acceleration, velocity, displacement, demodulation	User selectable
Maximum levels	± 80 g (800 m/s^2), ± 4 in/sec (100 mm/s), ± 400 mil (10 mm)	0-peak. Approximate, dependent on individual calibration
Dynamic signal range	≥ 95 dB (typical at 400 line resolution)	Acceleration and velocity. Greater with higher resolution and averaging
Harmonic distortion	Less than -70 dB typical	Dependent on input level and type. Other distortions and noise are lower
Units	g or m/s^2, in/s or mm/s, mil or mm or µm	0-peak, peak-peak or rms
	AdB, VdB	AdB ref. 1 µg rms, VdB ref. configurable 1.0e-5 mm/s rms or 1.0e-6 mm/s rms
Graph types	Spectrum (freq domain), waveform (time domain)	Solid histogram for spectrum, line graph for waveform
Magnitude display	Overall rms value, cursor-position value	Digital readout on chart
Warnings	% change in overall since baseline	Tolerances: Tight 50% to 150%, relaxed 25% to 200%
Cursors	Standard cursor	Vary x position to display x and y values
	Dual cursors	Lock standard cursor as reference and display difference
	Harmonic cursor	Up to 32 whole-number multiples of standard-cursor frequency
Accuracy	± 1% (0.1 dB)	Measured at 100 Hz, 23 ± 5 °C, 400 lines, 400 Hz range
Frequency response	± 0.1 dB from 10 Hz to 15 kHz; ± 0.5 dB from 3 Hz to 20 kHz	From value measured at 100 Hz
Spectrum Display		
Fmax possible ranges	0 to (100, 125, 150, 200, 300, 400, 500, 600, 800) Hz	Or equivalent CPM values
	0 to (1, 1.2, 1.6, 2, 2.5, 3, 4, 5, 6, 8, 10, 15, 20) kHz	Or orders-based from 1X to 30 000X
Fmin possible range	0 to Fmax	**vb** instrument zeroes all spectral lines below Fmin
Resolution	400, 800, 1600, 3200 lines (configurable)	1600 lines maximum if tachometer or more than 50% overlap used.
Frequency scale	Hz, CPM, orders	Linear scale. Can zoom in to display individual spectral lines
Amplitude scale	Acceleration, velocity, displacement or current	Linear or log scales
Window shapes	Hanning, rectangular	
Overlap	(0, 12.5, 25, 37.5, 50, 62.5, 75, 87.5) %	Dependent on Fmax and number of samples
Number of averages	1, 2, 4, 8, 16, 32, 64, 128	Increases sampling time proportionally
Averaging types	Linear, exponential, peak hold, synchronous	
Demod bandwidths	20 bandwidth options	From 125 Hz to 1250 Hz up to 16 kHz to 20 kHz
Waveform Display		
Number of samples	1024, 2078, 4096, 8192	
Time scale	ms, revs	
Time synchronous averages	1, 2, 4, 8, 16, 32, 64, 128	Only available when tachometer triggered
Keypad Entry		
Prompt and unit strings	16 characters each	
Input value range	± 59 999	
Time Intervals	Lines	
	Range 400 800 1600 3200	
Measuring time in seconds	0 Hz to 100 Hz 4 8 16 32	Dependent on number of lines and number of averages (values shown in table for no
(example ranges)	0 Hz to 800 Hz 0.5 1 2 4	overlap, no averaging, maximum display update of 4 per seconds)
	0 kHz to 4 kHz 0.1 0.2 0.4 0.8	
	0 kHz to 20 kHz 0.02 0.04 0.08 0.16	
Typical measure and record	5 seconds for 1600 lines, 1600 Hz, 8 averages, 50% overlap	Not including initial startup and settling time
Trigger Modes	Single (key press), free run	Trigger status displayed (busy, done, run, stop)
Logging Features		
Output formats	**vb** screen, transfer to **Ascent** PC-based software	
Data storage	8.5 MB non-volatile	Total of 8 000 spectra at 400 line resolution or 1000 spectra at 3200 line resolution
Data storage format	Up to 30 folders	User-specified machine, point, and axis names (16 characters) entered from PC or
	Up to 200 named machines per folder	keypad. Each recording has a unique time/date stamp
	Up to 780 named machines for all folders	
	Up to 30 multi-axial points per machine	
	Up to 8 routes per folder	
Balancing		
Planes	1	
Speed range	30 RPM to 60 000 RPM	
Measurement type	Acceleration, velocity, displacement	
Min and Max values	0.0004 in/s and 4 in/s (0.01 and 100) mm/s	0-peak. Approximate, dependent on calibration
Weight modes	Angle 0° to 360°, fixed position, circumference arc	e.g. attach weights on fan blades, linear distance around circumference
Remove trial weights	Yes, No	
Filter bandwidths	15 CPM, 150 CPM	
Manual data entry	Yes	Allows re-entry of previous balance jobs
Storage	10 balance jobs total	
Display	Graphic LCD	
Resolution	240 x 128 pixels	
Viewing area	4.3" x 2.3" (110 x 60) mm	
Backlight	Electro-luminescent	
PROFLASH	Allows **vb** firmware to be upgraded via built-in serial port	Download firmware service packs via the Internet
Communications	RS232	15 kV ESD protected. Cable with DB9 connector
Baud rate	57 600 bits per second	
Battery		
Type	Custom Nickel-Cadmium pack	
Voltage	7.2 V nominal	
Capacity	1500 mAh nominal	
Operating time (typical)	12 hours with backlight off, 7 hours with backlight on	Depends on mode and setup
Charger and Conditioner	Integral charger – automatic and manual control	Power transformer with 13.5 V ± 1.5 V DC, 1 A output included in kit
Charge rate	0.7 A nominal	2.5 hours for complete charge nominal
Discharge rate	0.5 A nominal	Combats NiCad battery memory effect
Mechanical		
Size	9.7" W x 6.1" L x 3.0" H (247 x 154 x 75) mm	Including protective boot
Weight	4.4 lb (2 kg)	Including protective boot and strap
Environmental		
Temperature/Humidity	32 °F to 122 °F (0 to 50) °C	
Operating	80% RH 32 °F to 86 °F	Non-condensing
	70% RH 86 °F to 122 °F	Non-condensing
	14 °F to 140 °F (-10 to 60) °C	
Storage	95% RH	
	EN55022, CISPR22	Radiated and conducted emissions
EMC	EN55024, CISPR24	RF field, ESD and fast transient immunity