VD3000TM



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.

- 1. 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.*
- 2. 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 finetuned for maximum usefulness.

Ascent Level 2 software package includes:

- 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

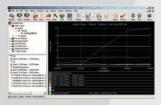
- 40 kHz Fmax
- 32 MB memory
- Cross channel phase analysis
- Support for acceleration, displacement, velocity and current sensors
- Process parameter input via keypad with trend and alarm capability in Ascent®

Plus ALL the features of the vb2000

- Route enabled build routes in **Ascent** 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
- ≥ 95 dB dynamic range
- 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.

*The incorporation of The Proven Method is available exclusively in Ascent®





Suplied with Ascent software





SPECIFICATIONS Sensor Input	MODEL vb3000	REMARKS
Number of channels Accelerometers	2 2-wire, low impedance piezoelectric, 100 mV/q nominal	Commonly termed 'ICP® type'
		Sensitivity 8.5 mV/g to 2300 mV/g
Velocity sensors	100 mV/in/s (4 mV/mm/s) nominal	Sensitivitý 8.5 mV/in/s 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 mV/mil to 2300 mV/mil (0.34 to 90.55) mV/µm Sensitivity 0.1 mV/Amp to 2300 mV/Amp
Current sensors	100 mV/Amp nominal	
Connector Input impedance	BNC > 100 kΩ	Safety feature: break-free inline connector
Voltage swing	16 V peak-peak	AC coupled input, allows for ± 8 V sensor output swing (± 80 g)
Sensor excitation current Sensor excitation voltage	0 mÁ or 2.2 mA (configurable) 24 V maximum	2.2 mA required for ICP® type accelerometer At sensor terminals with sensor attached
Sensor detection	Warns if short circuit or not connected	Channel 1 only
Tachometer Sensor	Laser sensor with reflective tape included in kit	Sensor triggers when the tape reflects its beam
Laser sensor range Sensor supply	10 cm to 2 m nominal 7.2 V nominal 6.0 V to 9.5 V instrument battery	Dependent on size of reflective tape Available to power sensor. Protected by 0.1 A PTC
Input type Pulse rating	Optically isolated, accepts TTL pulse 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 Parameter Indication	RPM, Hz, 1X amplitude and phase angle	For selected amplitude type, phase angle in degrees
Displays	Acceleration, velocity, displacement, demodulation and current	User selectable
Maximum levels Dynamic signal range	± 80 g (800 m/s²), ± 4 in/sec (100 mm/s), ± 400 mil (10 mm), ± 800 Amps ≥ 95 dB (typical at 400 line resolution)	0-peak. Approximate, dependent on individual calibration Acceleration and velocity. Greater with higher resolution and averaging
Harmonic distortion Units	Less than -70 dB typical g or m/s², in/s or mm/s, mil or mm or μm, Amps	Dependent on input level and type. Other distortions and noise are lower 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 Magnitude display	Spectrum (freq domain), waveform (time domain) Overall rms value, cursor-position value	Solid histogram for spectrum, line graph for waveform Digital readout on chart
Warnings Cursors	% change in overall since baseline Standard cursor	Tolerances: Tight 50% to 150%, relaxed 25% to 200% Vary x position to display x and y values
0415015	Dual cursors	Lock standard cursor as reference and display difference
Accuracy	Harmonic cursor ± 1% (0.1 dB)	Up to 32 whole-number multiples of standard-cursor frequency 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 40 kHz	From value measured at 100 Hz
Spectrum Display		Or equivalent CPM values
Fmax possible ranges	0 to (100, 125, 150, 200, 300, 400, 500, 600, 800) Hz 0 to (1, 1.2, 1.6, 2, 2.5, 3, 4, 5, 6, 8, 10, 15, 20, 30, 40) kHz	Or equivalent CPM values Or orders-based from 1X to 30 000X
Fmin possible range Resolution	0 to Fmax 400, 800, 1600, 3200 lines (configurable)	vb instrument zeroes all spectral lines below Fmin 1600 lines maximum if tachometer or more than 50% overlap used.
		800 lines maximum for dual channel measurements
Frequency scale Amplitude scale	Hz, CPM, orders Acceleration, velocity, displacement or current	Linear scale. Can zoom in to display individual spectral lines Linear or log scales
Window shapes Overlap	Hanning, rectangular (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 Demod bandwidths	Linear, exponential, peak hold, synchronous 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, 16 384	
Long time waveform	Up to 15 kHz Fmax. Up to 18 hours duration	Dependent on memory and user-specified settings
Time scale Time synchronous averages	ms, revs 1, 2, 4, 8, 16, 32, 64, 128	Only available when tachometer triggered
Keypad Entry		, 00
Prompt and unit strings Input value range	16 characters each ± 59 999	
Time Intervals	Lines Range 400 800 1600 3200	
Measuring time in seconds (example ranges)	0 Hz to 100 Hz 4 8 16 32 0 Hz to 800 Hz 0.5 1 2 4	Dependent on number of lines and number of averages (values shown in table for no overlap, no averaging, maximum display update of 4 per seconds)
(example ranges)	0 kHz to 4 kHz 0.1 0.2 0.4 0.8	overtap, no averaging, maximam display apadice of 4 per seconds,
Typical measure and record	0 kHz to 20 kHz 0.02 0.04 0.08 0.16 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 Data storage format	32 MB non-volatile Up to 30 folders	Total of 11 000 spectra at 800 line resolution or 4000 spectra at 3200 line resolution User-specified machine, point, and axis names (16 characters) entered from PC or
Data Storage format	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	
Data ada a	Up to 8 routes per folder	
Balancing Planes	1, 2	
Speed range Measurement type	30 RPM to 60 000 RPM 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 Remove trial weights	Angle 0° to 360°, fixed position, circumference arc Yes, No	e.g. attach weights on fan blades, linear distance around circumference
Filter bandwidths Manual data entry	15 CPM, 150 CPM Yes	Allows re-entry of previous balance jobs
Storage	10 balance jobs total	Account to entity of provides battained jours
Display Resolution	Graphic LCD 240 x 128 pixels	
Viewing area	4.3" x 2.3" (110 x 60) mm	
PROFLASH PROFLASH	Electro-luminescent 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 Battery	57 600 bits per second	
	Custom Nickel-Cadmium pack	
Type Voltage	7.2 V nominal	
Voltage Capacity	7.2 V nominal 1500 mAh nominal	Depends on mode and setup
Voltage Capacity Operating time (typical)	1500 mAh nominal 12 hours with backlight off, 7 hours with backlight on	Depends on mode and setup Power transformer with 13.5 V ± 1.5 V DC. 1 A output included in kit
Voltage Capacity Operating time (typical) Charger and Conditioner Charge rate	1500 mAh nominal 12 hours with backlight off, 7 hours with backlight on Integral charger – automatic and manual control 0.7 Å nominal	Power transformer with 13.5 V ± 1.5 V DC, 1 A output included in kit 2.5 hours for complete charge nominal
Voltage Capacity Operating time (typical) Charger and Conditioner	1500 mAh nominal 12 hours with backlight off, 7 hours with backlight on Integral charger – automatic and manual control 0.7 Å 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
Voltage Capacity Operating time (typical) Charger and Conditioner Charge rate Discharge rate Mechanical Size	1500 mAh nominal 12 hours with backlight off, 7 hours with backlight on Integral charger – automatic and manual control 0.7 A nominal 0.5 A nominal 9.7" W x 6.1" L x 3.0" H (247 x 154 x 75) mm	Power transformer with $13.5 \text{ V} \pm 1.5 \text{ V DC}$, 1 A output included in kit 2.5 hours for complete charge nominal Combats NiCad battery memory effect Including protective boot
Voltage Capacity Operating time (typical) Charger and Conditioner Charge rate Discharge rate Mechanical Size Weight Environmental	1500 mAh nominal 12 hours with backlight off, 7 hours with backlight on Integral charger – automatic and manual control 0.7 Å nominal 0.5 A nominal 9.7" W x 6.1" L x 3.0" H (247 x 154 x 75) mm 4.4 lb (2 kg)	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
Voltage Capacity Operating time (typical) Charger and Conditioner Charge rate Discharge rate Mechanical Size Weight Environmental Temperature/Humidity	1500 mAh nominal 12 hours with backlight off, 7 hours with backlight on Integral charger – automatic and manual control 0.7 Å nominal 0.5 A nominal 9.7" W x 6.1" L x 3.0" H [247 x 154 x 75] mm 4.4 lb [2 kg] 32 °F to 122 °F [0 to 50] °C 80% RH 32 °F to 86 °F	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 Including protective boot Including protective boot and strap Non-condensing
Voltage Capacity Operating time (typical) Charger and Conditioner Charge rate Discharge rate Mechanical Size Weight	1500 mAh nominal 12 hours with backlight off, 7 hours with backlight on Integral charger – automatic and manual control 0.7 Å nominal 0.5 Å nominal 9.7" W x 6.1" L x 3.0" H (247 x 154 x 75) mm 4.4 lb (2 kg) 32 °F to 122 °F (0 to 50) °C 80% RH 32 °F to 86 °F 70% RH 88 °F to 122 °F	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 Including protective boot Including protective boot and strap
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Voltage Capacity Operating time (typical) Charger and Conditioner Charge rate Discharge rate Mechanical Size Weight Environmental Temperature/Humidity Operating	1500 mAh nominal 12 hours with backlight off, 7 hours with backlight on Integral charger – automatic and manual control 0.7 A nominal 0.5 A nominal 9.7" W x 6.1" L x 3.0" H (247 x 154 x 75) mm 4.4 tb (2 kg) 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	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 Including protective boot Including protective boot and strap Non-condensing