

vb5[®]

**Economical data collection for
proactive maintenance professionals**



The vb5[®] data collector is a single channel, route-enabled instrument that provides everything you need for cost-effective data collection and analysis. This instrument enables maintenance professionals to easily take recordings with up to 6 400 lines of resolution and over 95 dB dynamic range - at exceptional value for money. Purchase of a vb5[®] instrument includes the powerful, award-winning Ascent[®] software.

Ascent[®] Level 1 enables you to program your instrument with thousands of separate machine definitions, covering a number of route choices. A library of over 300 customizable parameter sets is also available, enabling a vast array of measurement options.

Key features

Ascent[®] Level 1 software:

- Route enabled - Build routes in Ascent[®] and send these to your instrument
- CBDb - Commtest Bearing Database with over 30 000 bearings

Enhanced instrument functionality:

- 1 channel recordings
- 6 400 lines FFT resolution
- 40 kHz Fmax
- 1 GB memory - Virtually unlimited spectra storage
- Unique Commtest 6Pack[™] recording system
- ≥ 95 dB dynamic range
- Spectrum and Waveform recordings
- Large, high resolution (HVGA) backlit LCD
- Cable Test mode
- 5 year instrument hardware warranty
- Option to add Flex features

SPECIFICATIONS	vb5® DATA COLLECTOR	REMARKS
Sensors		
Sensor input	1 channel	
Compatible sensor types	Accelerometer	
AC coupled range	16 V peak-peak	Allows for ± 8 V sensor output swing (± 80 g)
Connectors	1 x BNC (CH1)	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 IEPE/ICP®-type accelerometer
Sensor detection	Warns if short circuit or not connected	

Tachometer		
Sensor	Laser sensor optional	Sensor triggers on beam reflection
Laser sensor range	10 cm to 2 m nominal	Dependent on size of reflective tape
Other sensor types supported	Contact, TTL pulse	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	
Speed range	10 RPM to 300 000 RPM (0.2 Hz to 5 kHz)	Pulse width at least 0.1 ms
Accuracy	+/- 0.1 %	

Parameter Indication		
Maximum levels	>1000 g (10 000 m/s ²), >1000 in/sec (25 000 mm/s), >100 in (2500 mm)	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	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)	% 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 10 Hz to <100 Hz ≤ 1.5 dB 1 Hz to <10 Hz	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 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 lines	3200 lines max. for dual channel measurements
Frequency scale	Hz, CPM, Orders	Linear scale with zooming
Amplitude scale	Acceleration, velocity, displacement	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	
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	Spectrum and waveform for low freq, high freq, demod.

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Waveform Display		
Number of samples	1024, 2048, 4096, 8192, 16 384	
Time scale	10 ms to 256 seconds	Or orders based from 1 to 999 revs
Data Logging		
Output formats	Instrument screen, transfer to Ascent®, XML	
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 are applied, 50 character names
Max folder size	10 000 measurement locations	

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	PROFLASH to upgrade instrument firmware
USB host port	USB 2.0, supplying 5V, 250mA	Save folders to USB flash drive

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

Environment		
Operating temperature	14 °F to 122 °F (-10 to 50) °C	
Storage temp. & humidity	-4 °F to 140 °F (-20 to 60) °C, 95% RH	If storage exceeds 1 month: Up to 95 F (35 C), 85% RH
EMC	EN61326	
Ruggedness	4' (1.2 m) drop onto 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	