

SPECIFICATION SUMMARY & BILL OF MATERIALS

**Model vb7: Two Channel Power User Analyser / Two Plane Balancer
Condition Monitor Software and Decision Support Software Package**



Mechanalysis (India) Ltd is a leading provider of condition management solutions with over 30 years experience in machinery vibration measurement. The company designs and manufactures proven instrumentation and sensors suitable for rugged industrial environments. A comprehensive range of products and services are available from the offices below:

Mumbai	Delhi	Kolkata	Chennai
1/5, Marol Co-op. Industrial Estate Ltd, Off. Mathuradas VasANJI Rd. Marol, Andheri (East) Mumbai 400 059	Sagar Deep, Plot No.11 LSC Saini Enclave Vikas Marg New Delhi 110 092	153/A, 2nd Floor VIP Road Kolkata 700 054	7-C, Chesney Nilgiri Apartments 65, Commander-In-Chief Rd. Chennai 600 105
Tel: +91(0)22-2852-0178 Tel: +91(0)22-2859-6214 / 6573 Fax: +91(0)22-2852-1814 info@mechanalysisindia.com service@mechanalysisindia.com	Tel: +91(0)11-2237-3916 Fax: +91(0)11-2237-0778 delsa@mechanalysisindia.com	Tel: +91(0)33-2355-2062 Fax: +91(0)33-2355-9214 kolsa@mechanalysisindia.com	Tel: +91(0)44-2823-0726 Fax: +91(0)44-2823-4702 chensa@mechanalysisindia.com



www.mechanalysisindia.com

Specification	Vb7- Two Channel Vibration Analyser	Remarks
Sensor input Sensors AC Coupled range DC coupled ranges Connectors Analog to digital Conversions Sensors excitation current Sensor Detection	2 Channels Accelerometer, Velocity, Displacement, Current 16V peak-peak 0V to 20V, -10 to 10V, -20V to 0V BNC 24-bit ADC 0 mA or 2.2 mA (configurable) 24V maximum Warns if short circuit or not connected	Simultaneous Sampling Allows for + 8V sensor output swing (+80g) E.g. for reading prox-probe gap Safety features: break-free inline connector 2.2mA required for ICP® - type accelerometer
Tachometer Sensor Laser sensor range Other sensor types supported TTL pulse rating Power supply to sensor Keyphasor® threshold Speed range	Laser sensor with reflective tape included in kit 10 cm to 2m nominal Contact, TTL pulse, Keyphasor® 3.5V 94mA min, 28V (6mA) max, off-state 0.8V 6V to 8V, 50mA 13V + 1V 30 RPM to 300,000 RPM (0.5Hz to 5kHz)	Sensor triggers when the tape reflects its beam Dependent on the size of reflective tape Instrument has optically isolated input Battery voltage with current limit
Parameter Indication Maximum Levels Dynamic signal range Harmonic distortion Units AdB, VdB, amps Magnitude and cursors Accuracy Frequency response	1000g (10,000 m/s), 1000 in/s (25,000 mm/s) 100 in (2500 mm) 10,000 amps 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 um US and SI options for both adB and vdB Overall RMS value, dual cursors, harmonics ± 1% (0.1dB) ± 0.1 dB from 10hz to 15kHz; ± 3dB from 1Hz to 40kHz	Effective limit is sensor sensitivity & output voltage Acceleration and velocity Other distortions and noise are low 0-peak, pk-pk or RMS. Auto scale by 1000k when reqd Digital readout on charts For DC Level (% F.S) and AC measured at 100 Hz Acceleration & velocity. From Value measured at 100Hz High freq. response also applies to DC ranges
Spectrum display Fmax possible ranges Fmin possible range Resolution Frequency scale Amplitude scale Window shapes Overlap Number of averages Averaging types Demodulation bandwidth	25, 50, 100, 125, 150, 200, 300, 400, 500, 600, 800 Hz 1,1.2,1.6,2.2,5,3,4,5,6,8,10,15,20,30,40, kHz 0 to Fmax 400,800,1600,3200,6400 lines Hz, CPM, orders Acceleration, velocity, displacement or current 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 999X Instrument Zeroes all spectral lines below Fmin 3200 lines max for dual channel measurement Linear scale with zooming Linear or log scale , auto or manual scaling Dependent on Fmax and number of lines Increase sampling time proportionally From 125Hz to 1250Hz upto 16kHz to 20kHz
Waveform Display Number of samples Time scale Time synchronous averages Long Time Waveform Fmax Long Time Waveform Duration	1024, 2048, 4096, 8192, 16384 10 ms to 256 seconds 1, 2, 4, 8, 16, 32, 64, 128 25 to 40 kHz 14.7 million samples (total over channels)	Or or based from 1 to 99revs Only available when tachometer triggered
Logging features Output formats Data storage Data storage structure Max folder size Keypad entry value range	LCD screen, transfer to ascent PC-based software 1GB non-volatile flash memory Folders/machines/points/locations/routes 10,000 measurement locations ± 999 999,999 999	Virtually unlimited recording storage No limits are applied, 50 character name 50 character prompt string
Balancing Planes Speed range Measurement type Weight modes Manual data entry	Planes 1,2 30RPM to 60,000 RPM Acceleration, velocity, displacement Angle 0° to 360°, fixed position, circumference arc Yes	eg. Weight on fan blades, linear dist around circumference. Allows reentry of previous balance job

Storage	Against machines in data structure	No limits are applied
Display and communication Display Resolution Backlight Viewing area Communication with PC	Graphic grayscale LCD 480 x 320 pixels (HVGA) White LED, 4V, 100 CD/m ² 4.6" x 3.1" (117 x 79)mm USB and Ethernet	PROFLASH allows inst software to be upgraded
Battery and charger Battery Type Operating time Charger type Charge rate	Custom Lithium Ion pack, 7.4V, 4500 mAh 10 hours Internal charging, automatic control 3A nominal	Backlight on (60 second timeout) External Power Pack 12V DC, 3A output, included in kit 3 hours for complete charge
Mechanical Size Weight	9.9"Wx5.8"Lx2.4"H (252 x 148 x 60)mm 2.7 lb (1.2kg)	Including Battery & Strap
Environmental Operating Temp Storage temp & humidity EMC Ruggedness	14 F to 122 F (-10 to 50) °C -4 f to 140 f (-20 to 60) °C EN6 1326 MIL-STD-810F-IV, 4' (1.2m) drop onto concrete	Procedure: MIL-STD-810F-IV



Generic Specification for 2-Channel Vibration Analyser/Balancer Instrument with Software

SNo.	Feature	Comments
1	Indication	Digital Analyser
2	Display	LCD 117 x 79 mm Resolution 480 x 320 pixels
3	Packing	IP65/ 1.2 m drop onto concrete.
4	Dimensions	252x1148x60 mm
5	Weight	1.2 kg
6	Frequency	±0.1 dB from 10 Hz to 15kHz; ±3 dB from 1 Hz to 40kHz
7	Resolution	400, 800, 1600, 3200, 6400, 12800 lines
8	Dynamic range	>95dB
9	A/D Converter	24-bit
10	No of Channels	2 & additional 1 for Phase measurement
11	Data Storage	1 GB
12	Sensors Compatibility	Accelerometer (ICP type) & Tach (both Strobe & laser). Connecting ports for sensors on data collectors should be BNC type
13	Analysis	FFT, Wave form, Route Enabled, 6 pack, keypad Entry, Average Value, Time Synchronous Averaging, Bump Test, Coast-down/Run-up, Cross -channel phase
14	Amplitude Scale	Displacement, Velocity, Acceleration, Current
15	Temperature range	-10 to 50 C (operating), -20 to 60 C (storage)
16	Power Supply	Custom Lithium ion pack, 7.4V, 4500 mAh 110 & 230V, 50Hz
17	Accessories	<ol style="list-style-type: none"> 1. Two sensor used for displacement, velocity and acceleration measurements 2. Signal sensor cable 3. Magnetic Mount 4. Tachometer-laser type
18	Software	Windows based 32 bit, Should not take up more than 100mB Computer disc space. Should be Vista Compatible
19	Software	<p>Vibration analysis software should have downloading & archiving facility for FFT, TWF, Exception reporting, data trending, alarm bands, Order display, Fault Frequency analysis, harmonic & sideband cursors should be available with the software.</p> <p>Efficient easy transferring facility of reports 7 charts to Microsoft Office Packages like Word, Excel etc.</p> <p>The software should have advanced waveform analysis Tools like converting TWF to FFT & vice-versa</p> <p>Separate software should be available for decision support to pinpoint exact nature of machinery Problem.</p> <p>Library of more than 30,000 bearing database</p>
20	Warranty	Vendor should provide 5 years warranty on instrument & six months for accessories. 12 months upgrade path guarantee
21	Support	Life time help desk support via E-mail 5 years software & firm upgrades via website
22	Calibration	Vendor to have national traceable sensor calibration facility and local Services
23	Training	Training to be given at time of system commissioning. Optionally offer interactive training CD on Vibration analysis



Standard Accessories of Hardware and Software

SN	Category	Description	Part Number	Units	Comments	
1	System Package	Two Channel Power User Vibration Analyser/ Balancer Route Data Collector Package with Standard Accessories	KTV70323	1		
2	Instrument	Vb7 instrument- Dual Channel, powerful analysis features	KALC0327	1	Five Year Warranty on Instrument, 6 Months on battery, See conditions for accessories below	
3	Sensors & Accessories	Carry Bag- vb Series (classic and vb7)	CBVB0032	1	12 Months from purchase Date	
4		Neck strap with sensor keeper	NSSK0275	1	12 Months from purchase Date	
5		CS 103 12vDC 3A Universal Transformer	ADA70227	1	12 Months from purchase Date	
6		C8 Mains Cable- India	PLSA0241	1	12 Months from purchase Date	
7		DC Automobile Adapter	DCCA0041	1	12 Months from purchase Date	
8		Magnet base- accelerometer- male	MAGM0064	2	12 Months from purchase Date	
9		Cable Straight 5m length, Red Connector for balancing	CB5R0025	1	12 Months from purchase Date	
10		Cable Straight 5m length, Green Connector for balancing	CB5G0024	1	12 Months from purchase Date	
11		Carry bag for balancing gear	CBBL0026	1	12 Months from purchase Date	
12		Reflective Tape	RTAP0094	1	12 Months from purchase Date	
13		Sensor Accelerometer, model MIL501, Premium, 2-10KHz, 100 mV/g, Top Exit, Mil 2 pin Connector, 1/4"- 28UNF Female Mounting Thread with National Traceable Cal. Cert	M5011005001000	2	60 Months from purchase date but recalibration is recommended and available at MIL	
14		Cable Coiled for sensor	CBCC0027	2	12 Months from purchase Date	
15		Laser tach sensor with block	LASA0062	1	12 Months from purchase Date	
16		Magnetic Base with stand/extension arm for Laser tach /block	MAGA0063	1	12 Months from purchase Date	
17		5m length Laser cable with Lemo	CBL50216	1	12 Months from purchase Date	
18		USB Data Transfer Cable	CABU0213	1	12 Months from purchase Date	
19		Quick Start Guide	QSG0248	1		
20		Instrument manual for vbX	MVBX0250	1		
21		Condition Monitoring Software	Ascent2 Single License	SAL20132	1	Five year software support
22		Condition Monitoring Software	Ascent Software Security Dongle- USB HL PRO	DGL0219	1	12 Months from purchase Date
23		Interactive Vibration Training Trial CD	CDIL0197	1	A 9 hour interactive vibration training 21 day Free Trial CD supplied	
24	Decision Support Software	iLearnVibration Professional Training (includes all Standard products) plus test rig, case histories, signals, machine faults and alarms	iLearn Professional	1	12 months from purchase order	
25	Decision Support Software	Interpreter Vibration Decision Support	iLearnVibration [Interpreter]	1	12 months from purchase order	
26	Mechanalysis Support Services	Commissioning (in days)	CMG4	4	Three days on-site, one day traveling. System commissioning, load route and data collection. If training in vibration technology is required then a further two days will be charged. Expense at cost	



www.mechanalysisindia.com