

## VIBRATION ANALYSER cum DYNAMIC BALANCER

### FEATURES

- Vibration Measurement, frequency analysis and Field Balancing in a single, compact and portable instrument.
- True rms measurements as per ISO 2372 and IS 11724; including Min/Max/Mean measurements for varying vibration levels.
- Automatic scanning and storage and peaks finding of upto 24 frequency spectra.
- Single- plane and Two- plane dynamic field balancing vector calculations built- in.
- Serial data transfer of spectra to a PC with Windows based software VS22.
- User- friendly interface with 4 line backlit display.
- Two inputs for Accelerometer sensors.
- Sealed membrane type keyboard with only 3 command keys- Accept, next and start.
- Rechargeable maintenance- Free battery.
- Lightweight and portable, fits into a briefcase.



### DESCRIPTION

Vibration measurement, Condition Monitoring based on frequency- analysis and In- position dynamic balancing of rotors: these are the three most commonly faced applications of vibration in machinery. The 6050 offers solutions to all these three applications in a single, portable, rechargeable battery operated unit which fits into a briefcase. The microprocessor controlled unit makes all these tasks easy for the user. It has an 80 character alphanumeric LC display, on which the message appears in plain, easy to understand English.

### MEASUREMENT:

Acceleration, Velocity, Displacement or Bearing Spike can all be measured with the 6050. In problem cases such as induction motors, where there are normal fluctuations in the vibration readings the unit will report minimum, maximum and mean of 20 successive readings. The readings can also be downloaded to a PC for monitoring/ printing.

### ANALYSIS:

The 6050 features automated full frequency analysis. Frequency Analysis can be done over the frequency range 1Hz to 10 kHz (60 cpm to 600,000 cpm). Its microcontroller scans the entire frequency range looking for spectral peaks. Each peak contains valuable information: range magnitude of the peak is the severity of the vibration and the frequency is related to the nature of the defect. If imbalance is the dominant cause of vibration, a peak will be found at the rotation frequency with a magnitude comparable to the overall vibration, with the PC software VSCAN, the spectra can be quickly transferred to the PC over a serial port, where the spectra can not only be saved, and printed on the PC, but also post-processed. Enveloping is one such powerful tool, where limits are placed on a good spectrum and if any portion of the spectral region grows beyond the envelope over time an alarm is reported – pinpointing the defect developing in the machine. One can also view the history of the spectra and thus find out how a spectral peak has grown over time. The system is implemented in MS- windows, and assumes only a very fundamental knowledge of computers.

### BALANCING:

Two- plane and single- plane dynamic balancing can be performed in- situ with the 6050. It has all the required vector calculation algorithms built-into its program. Thus the operator is freed from the task of determining the weights by calculations or hit – and –try methods, resulting in vastly improved, quick and accurate results. A sharp auto tracking filter synchronises automatically to the rotational speed and filters out all extraneous vibrations. It is also possible to compare the Overall and Synchronous vibration readings to confirm unbalance as being the dominant cause of vibration.

The unit is supplied as a complete kit with one sensor, lead, infra- red reference sensor and magnetic mounting stand as standard. Those requiring 2 sensor for 2 plane balancing can order an extra sensor.

The unit runs on rechargeable batteries and has no moving parts. It employs the latest surface-mount technology for ensuring a lightweight, compact and reliable design.

NPL traceable calibration is furnished with each unit, and recalibration is also offered after the specified period. ISO 9000 organizations find this service very useful.

**APPLICATIONS:**

- *Quality checking of rotating equipment as an QC check.*
- *Vibration troubleshooting based on spectrum- analysis. Interface with PC for downloading and printing of spectra.*
- *Condition monitoring of rotating machines by spectral trending and enveloping in the PC*
- *In- position 1-plane and 2-plane dynamic balancing with inbuilt computation algorithms.*

**USERS:**

- *Process plants – Cement, Petrochemicals, Chemicals, Steel, Glass, Rayon and Yarn.*
- *Conventional and nuclear power plants.*
- *Air- conditioning plants.*
- *Oil industry- prospecting and refining.*
- *Automobile and others using CNC machines.*
- *OEM manufacturers of motors, pumps, blowers, impellers, and industrial fans.*
- *Railways*
- *Research and educational.*



**Manufactured in India by Baseline Technologies, New Delhi, an ISO 9001:2000 company**

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## SPECIFICATIONS

### VIBRATION ANALYSER cum DYNAMIC BALANCER 6050:

Inputs	:	Two inputs for accelerometers, one for reference tachosensor
Measurement Modes	:	Acceleration (RMS- m/sec <sup>2</sup> ); Bearing Spike (RMS- m/sec <sup>2</sup> ); Velocity (RMS-mm/sec); Displacement (PK-Pk microns)
Measurement Ranges:		Three manually selectable ranges and Auto-ranging.
Acceleration	:	0-2.5 to 0-250 m/sec <sup>2</sup> True RMS in 3 scales.
Velocity	:	0-2.5 to 0-250 mm/sec True RMS in 3 scales.
Displacement	:	0-25 to 0-2500 microns Pk-Pk in 3 scales.
Frequency Range	:	ISO (10Hz-1kHz); 1Hz-1kHz ; 1Hz-10kHz; 10Hz-10kHz
Measurements	:	Overall Vibration measurement as per selected mode
		Synchronous Vibration measurement through Auto tracking filter
		Cartesian (x,y) or Polar (amount,angle) Vibration vector measurement
		Min/Max/Mean of 20 overall readings
Frequency Analysis	:	Microprocessor controlled frequency analysis over 1 Hz-10kHz with constant percentage bandwidth filter in 1% steps over 1 Hz-1kHz and 2% steps over 1kHz-10kHz. Facility to Pause scanning at any frequency Automatic Peak finding and display routine. Saving in Data Memory for later transfer to PC
Data Memories	:	Adequate for storing 24 spectra. After transfer to the PC, an almost infinite spectra can be stored on the disk of the PC.
Balancing	:	Single Plane Balancing Single Plane re-balancing without trial weight Two-plane Balancing Two-plane re-balancing without trial weights Easy to follow procedure with prompting of steps.
Dimensions	:	288 (W) x 280 (H) x 102 (D) mm. Supplied fitted in a foam-lined briefcase
Battery	:	Internal rechargeable battery. Approx charge life of 6-10 hours continuous use, and a life of approx 500 deep cycles.
Battery charger	:	Separately supplied as standard accessory
Temperature range	:	0-45 Deg C upto 90% humidity (non-condensing)
Weight	:	2.8 Kgms approx. without carrying case
Standard Accessories	:	1 Sensor with 3m lead, 1 Magnetic base, 1 reference sensor, 1 magnetic stand, 1 battery charger, Briefcase type carrying case, and 1 Operation Manual NOTE: 2 Plane balancing requires 2 sensors.

Note1 : The above stated item is designed and manufactured exclusively by Baseline Technologies, New Delhi, India. Baseline Technologies reserves the right to amend the above specifications at any time in the interest of improvement of the product or its process. The above specifications do not constitute a contract unless accompanied with a formal offer from Baseline Technologies.