

VATS™ (Vibration Analysis Tool Set)

Concern for the hazards related to exposure of the human body to vibration from power tools, vehicles and machinery has increased in recent years. Various standards have been implemented to address this important hazard area. The VATS™ Series of vibration analysis products has been developed to enable organizations to easily obtain vibration data and compare them to the various standards.

The VATS™ Series of vibration analysis products are available as individual packages for either hand-arm or whole body analysis or for both. The VATS includes the DataLOG that is a fully portable, programmable data acquisition unit. The DataLOG collects data from the accelerometers (10g and 1000g models) that is then downloaded to a PC for detailed analysis.

Hand-arm vibration analysis is based on the ISO 5349 and ACGIH standard for hand arm vibration (HAV). Whole body vibration analysis is based on the ISO 2631-1, ISO 2631-5, BS 6841, and ACGIH standard for whole body vibration (WBV).

The small, lightweight (129g), battery operated DataLOG incorporates a color graphics LCD, joystick, micro SD card interface, and a real-time wireless Bluetooth link to a PC. The data can be transmitted to the PC, stored only on the Micro SD card, or simultaneously stored on the Micro SD card providing complete back-up. Up to 4 DataLOG units can be synchronized for a total of 32 analog channels. Data for X, Y and Z axes of the accelerometers is simultaneously collected and stored on a high capacity micro SD card for subsequent download and analysis.



The DataLOG also supports additional sensors such as load cells, electrogoniometers, force sensors and EMG sensors .

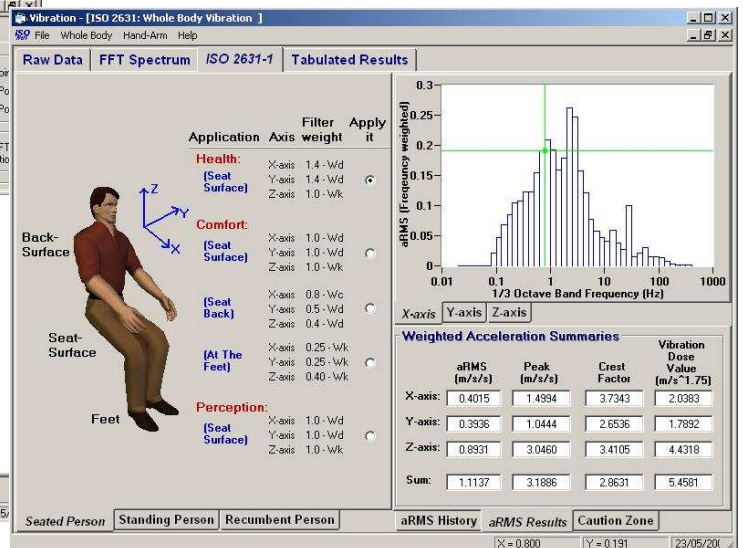
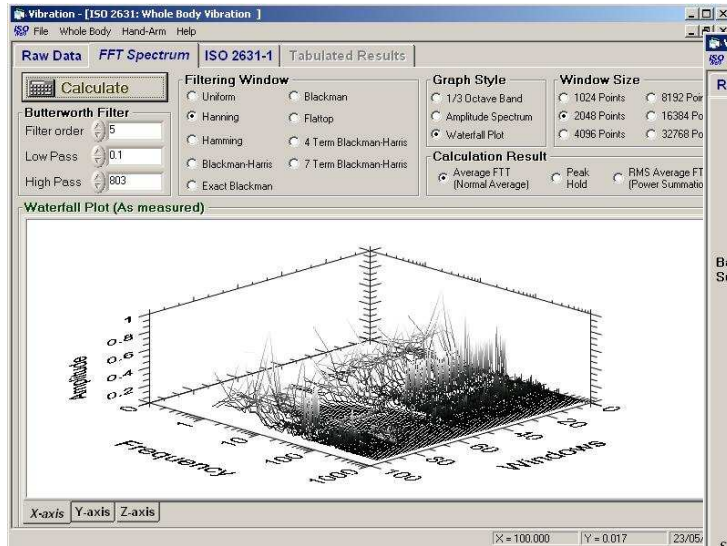
With VATS, the user can either perform detailed analysis with full reporting on a local PC or send the data electronically for analysis at a central corporate site. This approach simplifies data collection and incorporates sophisticated analysis with user-friendly software and comprehensive help. Raw data is available for analysis.

During recording, real time feedback is obtained from the Graphics Display in the form of a bar chart, digital readout of raw data, or as adjustable audible alarms. A real-time clock is included in the DataLOG to enable every recording to be marked with an accurate start date and time with its duration.

VATS SOFTWARE FEATURES

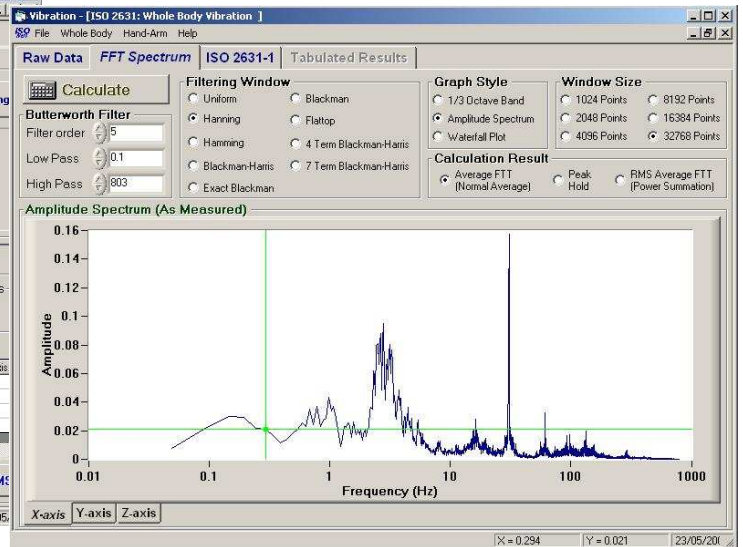
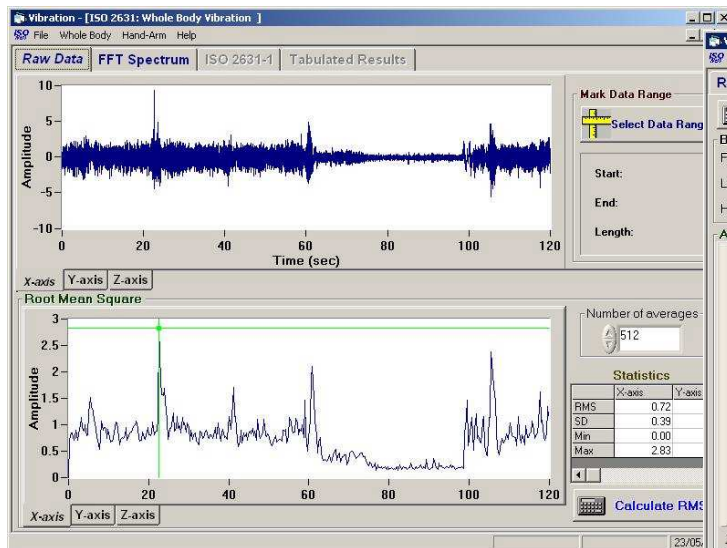
Data Analysis performed:

- ▶ Fast Fourier Transfer
- ▶ 1/3 Octave band analyze
- ▶ Weighted and unweighted RMS
- ▶ Band-pass Butterworth filter
- ▶ Filtering window
- ▶ Waterfall plot
- ▶ Spectrum plot
- ▶ 1/3 octave band plot
- ▶ Crest factor
- ▶ Vibration dose value
- ▶ TLV/Caution zone value for ISO and ACGIH standards
- ▶ RMS history and summaries



Data provided:

- ▶ All calculated values can be exported to spreadsheets, word processor, etc.
- ▶ Graphic output can be copied as bitmap



KEY VATS FEATURES

- Multiple tri-axial accelerometers can be connected
- 8 channels can be expanded to 32 channels
- Other sensors such as Force Sensors and joint angle sensors can be connected
- All raw data is stored on memory cards with 2-8GB of storage memory available
- Powerful and easy to use analysis software.

DataLOG

Dimensions: 104 x 62 x 22 mm
Mass: 129g
Battery type: 2 x Alkaline AA, LR6, MN 1500
Battery life: 5-11 hours nominal depending on sensor type & quantity
Communication with host PC: Bluetooth
Sampling rate: up to 20KHz per channel
Operating temperature: +5 to +50 Celsius
Storage temperature: -40 to +70 Celsius

MINIMUM PC REQUIREMENTS

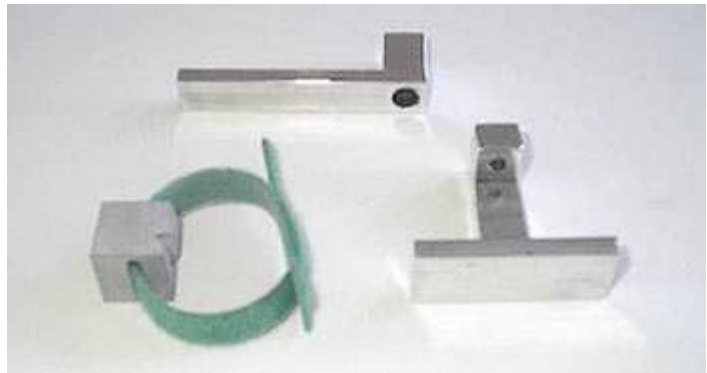
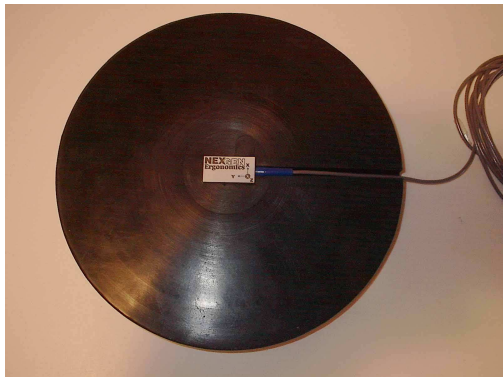
- ▶ Pentium 1.2 GHz
- ▶ 1 GB minimum RAM
- ▶ Windows XP, Windows 7 (XP mode)

VATS -WB-PKG Whole Body Analysis

Includes Series 2 accelerometer, seat pad, analysis software
Seat Pad Dimensions: Approximately 8 inch diameter and ½ inch thick in the center

VATS -HA-PKG Hand-Arm Analysis

Includes Series 3 accelerometer, mounting kit, analysis software



OPTIONS

IDENT SWITCH IS3

A 1.8 meter (6 ft) cable with a suitable connector at one end to connect to the DataLOG, and one hand held switch at the other. This useful accessory allows time marks to be superimposed on the recorded data enabling the operator to highlight specific events during data collection.

Synchronization Cables SYNC2/3/4

For applications requiring greater than 8 analog or 5 digital channels, multiple DataLOGs may easily be synchronized using one of the following cables.

SYNC2: To synchronize 2 DataLOGs for up to 16 analog and 8 digital channels of data acquisition

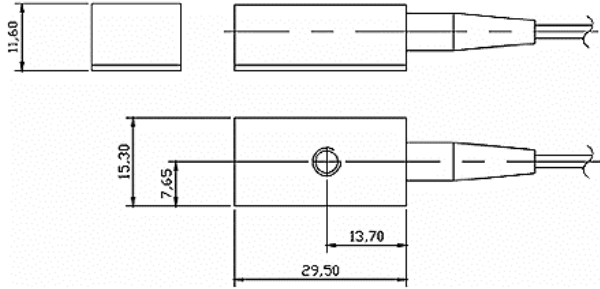
SYNC3: To synchronize 3 DataLOGs for up to 24 analog and 12 digital channels of data acquisition

SYNC4: To synchronize 4 DataLOGs for up to 32 analog and 16 digital channels of data acquisition

Cable length: 500 mm

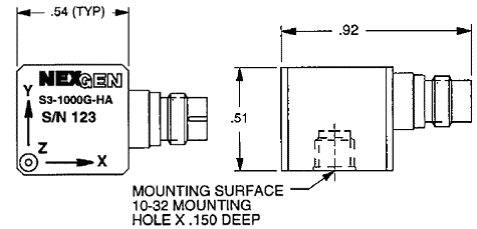
Synchronization: Better than 8 milliseconds

Series 2 Accelerometers



Product #: **S2-10G-MF**
 Dimensions: L x H x W (29.5 x 11.6 x 15.3 mm)
 Weight: 15 grams
 Enclosure: Aluminum grade 6063TF anodized
 Cable: Cooner Wire NMUF 4/30-4046 SJ
 Cable Length: 2440 mm
 Sensitivity (set up within management software):
 ± 1.00 Vdc = ± 10g, Resolution 0.0025 g
 or ± 300 mVdc = ± 3g, Resolution 0.00075 g
 or ± 100mVdc = ± 1g, Resolution 0.00025 g
 (all 3 options allow for full 13 bit resolution of ± 4000 counts)
 Supply voltage: +4.50 Vdc (X axis only)
 All 3 axes powered by X axis plug.
 Cross talk: 5%
 Accuracy: Better than ± 2 % full scale
 Low pass filtering:
 100 Hz, 500 Hz, 1,250 Hz user adjustable via links
 by removing lid of interface unit. Low pass filtering 8 pole, 8th order 1.2 Elliptic
 Shock survival: 500g unit powered, 1000g unit no power.

Series 3 Accelerometers



Product #: **S3-1000G-HA**
 Dimensions: L x H x W (0.54 x 0.51 x 0.54 inches)
 Weight: 8 grams
 Material, Housing/Connector: Titanium alloy
 Sensitivity: ±2%
 Range, F.S. (each axis): ±1000 G
 Full Scale Voltage Output: ±1 Volts
 Element Natural Frequency, Nom.: 30 kHz
 Equivalent Electrical Noise: .007 G, RMS
 Linearity: 1 %F.S.
 Linearity is % of specified full scale (or any lesser full scale range), zero-based best fit straight line method.
 Transverse Sensitivity, Max: 5 %
 Signal Polarity: Positive for motion in direction of arrows etched on housing
 Maximum Vibration: 1200 G
 Maximum Shock: 5000 G
 Temperature Range: -40 to +175 °C

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