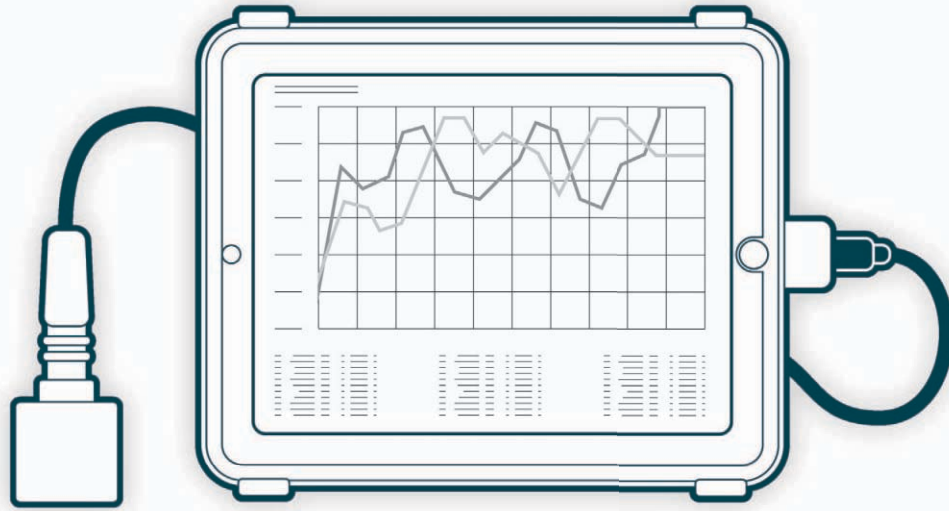


Advanced Machine and Engineering

TECHNICAL SPEC SHEET



Introducing AME's iPad2 Vibration Analysis System

Conduct vibration readings right from Apple's iPad2.

The iPad2 using the application Spindle Scope allows the user to take readings and leverage the powerful platform of the iPad2. The user can now take readings and in one touch email those readings for a real time analysis by an expert that is off site. The user will be able to save pictures of the screen graphs to later compare data.

Connected to the AT&T or Verizon data networks*, the user can access the internet for inventory data, machine specs, and reading history. Allowing the user to connect the vibration analyzer to the internet opens a world of undiscovered possibilities including: Live video conferencing, Real Time off site expert analysis, and much more.

Benefits

- ▶ 10% of the cost of traditional Vibration Analysis System
- ▶ Lightweight and easy to carry in custom case
- ▶ Additional functionality of Apple's iPad included
- ▶ Connect to internet with WiFi or through the AT&T or Verizon 3G data networks*
- ▶ 1 touch email of readings to off-site experts

Features

- ▶ Apple iPad2
- ▶ External Accelerometer
- ▶ Spindle Scope iPad application for vibration analysis
- ▶ Custom carrying case that protects your device and makes it easy to use

*The Apple iPad2 3G data network is provided by AT&T or Verizon. You will be required to choose a service provider when ordering.

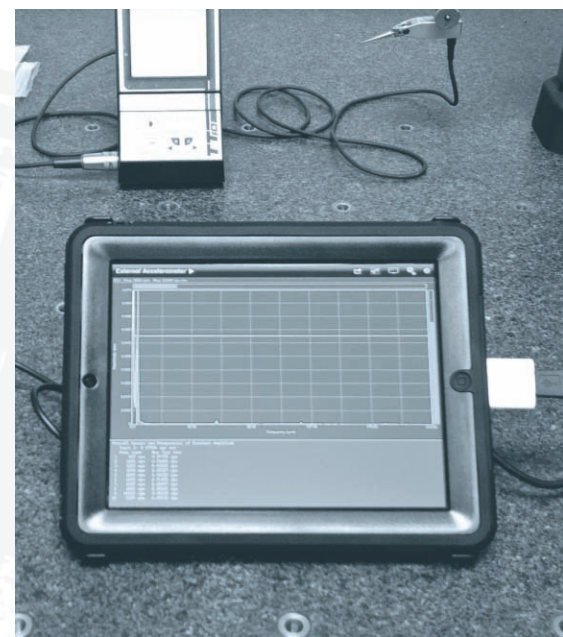
Common Causes of Vibration

- Imbalance
- Misalignment / Shaft Runout
- Wear
- Looseness
- Bearings and Gearmesh

Why use vibration analysis?

Predictive maintenance involves the trending and analysis of machinery performance parameters to detect and identify developing problems before failure and extensive damage can occur. If problems can be detected early, when defects are minor and do not affect performance, and if the nature of the problem can be identified while the machine runs:

1. Shutdown for repairs can be scheduled for a convenient time.
2. A work schedule, together with the requirements for personnel, tools and replacement parts can be prepared before the shutdown.
3. Extensive damage to the machine resulting from forced failure can be avoided.
4. Repair time can be kept to a minimum
5. Machines in good operating condition can continue to run as long as no problems develop.



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Accelerometer with Cabling

PER SPECIFICATIONS

InCheck miniature sensors use MEMS microchip sensing elements sealed in a rugged casing for industrial use. Unlike traditional piezoelectric accelerometers, MEMS sensors can be directly interfaced with standard ADCs without the need for analog signal conditioning.

The MEMS sensing elements have stable characteristics over time and a range of temperatures, eliminating the need for field calibration and allowing for precise measurements. The sensitivity of accelerometers varies within a tight range of $\pm 2\%$. Such accuracy is not achievable with piezoelectric accelerometers.

The low power requirements make it possible to incorporate an optional precision temperature sensing element within the sensor body, creating a dual sensor. The temperature output is linear with an accuracy of $\pm 1^\circ\text{C}$ at 25°C

Since the sensors do not require field calibration and can withstand wide temperature fluctuation (-40 to $+125^\circ\text{C}$) it is easy to have them permanently installed.

Features and Benefits

16 GB iPad2 WITH 3G CAPABILITY (AT&T or Verizon*)

- ▶ All native iPad2 applications as well as bearing frequency application

OIL/WATER RESISTANT CASE

ANALOG TO DIGITAL CONVERTER BOX

- ▶ mounted to case

SPINDLESCOPE SOFTWARE APPLICATION

- ▶ Full FFT signature graph from 0 to 20khz or 0 to 1.2 million CPM
- ▶ Measuring in Acceleration (Gs) or Velocity (in or mm/sec)
- ▶ Full listing of top ten frequencies in order of highest amplitude (velocity and acceleration)
- ▶ Data Save function - .txt file, and .csv file.
- ▶ Settings functions for: axis scales, cursor options, spectrum data on/off and background color (white or blue)
- ▶ Internal/external accelerometer switch
- ▶ Wireless transmission of data captured
- ▶ Spectrum options: 7 data windows, 3 averaging choices and frequency resolution 1hz to 50hz

Electrical

Power supply voltage, Vs	3.15 to 5.5	V
Turn-On Time	10 ms	

Electrical

Shock resistance	4000g	$^\circ\text{C}$
Operating Temperature range	-40 to 125	
Reverse polarity protection	Yes	
Mounting options	Magnet	
Casing material	316SS	
Casing ground isolation	Yes	

MEMS SENSING ELEMENTS

Acceleration Temperature	ADXL001	
Acceleration Output	TMP-36	
Measurement Range	$\pm 70 \pm 250 \pm 500$	g
Sensitivity @ 3.3V	16.0	mV/g
Sensitivity @ 5.0V	24.2	mV/g
Frequency Range (± 3 dB)	0 to 12	kHz
Resonant Frequency	22	kHz
Non-Linearity	0.2	%
Transverse Sensitivity	2	%
Output Range	0.2 to Vs-0.2	V
Bias Voltage	0.5 Vs	V

TEMPERATURE OUTPUT

Accuracy @ 25°C	± 1	$^\circ\text{C}$
Sensing Range	-40 to +125	$^\circ\text{C}$
Sensitivity	10	mV/ $^\circ\text{C}$
Output @ 25°C	750	mV
Linearity	0.5	$^\circ\text{C}$

cost: \$3,995/each

ADDITIONAL OFFERINGS:

- ▶ Extra Accelerometer \$400
- ▶ Analyze Readings - \$40 per machine
- ▶ Onsite Calibration/in House - \$40/hr. + travel



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