TECHNICAL DATA

Fluke 810 Vibration Tester



The most advanced troubleshooting tool for mechanical maintenance teams who need an answer now. The unique diagnostic technology helps you quickly identify and prioritize mechanical problems, putting the expertise of a vibration analyst in your hands.

You take pride in your facility, your team, and your work. You do what it takes to keep things up and running, but sometimes there is not enough time or resources to keep up with the workload, let alone be proactive about mechanical maintenance. The Fluke 810 Vibration Tester puts you one step ahead by coupling a powerful diagnostic engine with a simple step-by-step process to report on specific machine faults and their severity the first time measurements are taken, without prior measurement history. Overall vibration measurements and spectral diagrams give technicians the ability to quickly asses overall machine health, while enhanced reporting and actionable recommendations give you the confidence you need to address critical problems first.

Use the Fluke 810 Vibration Tester to:

- Troubleshoot problem equipment and understand the root cause of failure
- Survey equipment before and after planned maintenance and confirm the repair
- Commission new equipment and ensure proper installation
- Provide quantifiable proof of equipment condition and drive investment in repair or replacement
- Prioritize and plan repair activities and operate more efficiently
- Anticipate equipment failures before they happen and take control of spare parts inventories
- Train new or less-experienced technicians and build confidence and skill across the team

Features and benefits

- **On-board identification and location of the most common mechanical faults (bearings, misalignment, unbalance, looseness)** focus maintenance efforts on root cause, reducing unplanned downtime
- **Overall vibration level** allows you to quickly assess overall machine health directly from the diagnosis screen
- **Fault severity scale with four severity levels** help you prioritize maintenance work
- **Repair recommendations** advise technicians on corrective action
- **Detailed diagnostic reports and spectral diagrams** help confirm data quality, and narrow down the root cause of failures
- **On-board context sensitive** help provide real-time tips and guidance to new users
- **Flexible machine speed configurations** gives the ability to test a broad range of assets including belt drives, gear boxes, and bevel gears
- **2 GB expandable on-board memory** provides enough space for your machinery's data
- **Self-test function** ensures optimal performance and more time on the job
- **Laser tachometer for accurate machine running speed** promotes confident diagnoses
- **Tri-axial accelerometer** reduces measurement time by 2/3 over single axis accelerometers
- **Viewer PC Software** expands data storage and tracking capacity



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Tester specifications

Diagnostic specifications		
Standard faults	Unbalance, looseness, misalignment and bearing failures	
Analysis for	Motors, fans, blowers, belts and chain drives, gearboxes, couplings, centrifugal pumps, piston pumps, sliding vane pumps, propeller pumps, screw pumps, rotary thread/gear/lobe pumps, piston compressors, centrifugal compressors, screw compressors, closed coupled machines, spindles	
Machine rotational speed range	200 rpm to 12000 rpm	
Diagnosis details	Plain-text diagnosis, fault severity (slight, moderate, serious, extreme), repair details, cited peaks, spectra	
Electrical specifications		
Ranging	Automatic	
A/D converter	4 channel, 24 bit	
Usable frequency bandwidth	5 Hz to 20 kHz	
Digital signal processing functions	Automatically configured anti-alias filter, high-pass filter, decimation, overlapping, windowing, FFT, and averaging	
Sampling rate	2.56 kHz to 51.2 kHz	
Dynamic range	128 dB	
Signal to noise ratio	100 dB	
FFT resolution	800 lines	
Spectral windows	Hanning	
Frequency units	Hz, orders, cpm	
Amplitude units	in/sec, mm/sec, VdB (US), VdB* (Europe)	
Non-volatile memory	SD micro memory card, 2 GB internal + user accessible slot for additional 2 GB storage	
General specifications		
Dimensions (HxDxW)	18.56 cm x 7.00 cm x 26.72 cm (7.30 in x 2.76 in x 10.52 in)	
Weight (with battery)	1.9 kg (4.2 lb)	
Display	¼ VGA, 320 × 240 Color (5.7 inch diagonal) TFT LCD with LED backlight	
Input/Output connections	Triaxial sensor connection	4 pin M12 connector
	Single axis sensor connection	BNC connector
	Tachometer connection	Mini DIN 6 pin connector
	PC connection	Mini 'B' USB (2.0) connector
Battery	Battery type	Lithium-ion, 14.8 V, 2.55 Ah
	Battery charging time	Three hours
	Battery discharge time	Eight hours (under normal conditions)
AC adapter	Input voltage	100 V ac to 240 V ac
	Input frequency	50/60 Hz
Operating system	WinCE 6.0 Core	
Language support	English, French, German, Italian, Japanese, Portuguese, Simplified Chinese, Spanish	
Warranty	Three-years	
Environmental		
Operating temperature	0 °C to 50 °C (32 °F to 122 °F)	
Storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)	
Operating humidity	10 % to 95 % RH (non-condensing)	
Agency approvals	CHINA RoHS, CSA, CE, C TICK, WEEE	
Electromagnetic compatibility	EN 61326-1:2006, EN 61010:1:2001 2nd ed.	

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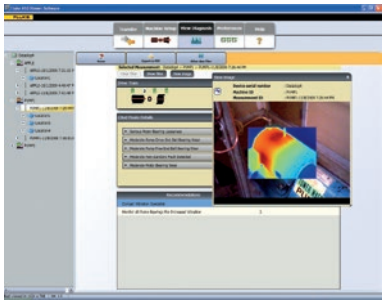
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Sensor specifications		
Sensor type	Accelerometer	
Sensitivity	100 mV/g (± 5 %, 25 °C)	
Acceleration range	80 g peak	
Amplitude nonlinearity	1 %	
Frequency response	Z	2 to 7,000 Hz ± 3dB
	X, Y	2 to 5,000 Hz ± 3dB
Power requirement (IEPE)	18 V dc to 30 V dc, 2 mA to 10 mA	
Bias output voltage	12 V dc	
Grounding	Case grounded	
Sensing element design	PZT ceramic / shear	
Case material	316L stainless steel	
Mounting	10-32 captive socket head screw, 2-pole rare earth magnet (48 lb pull strength)	
Output connector	4-Pin, M12	
Mating connector	M12 - F4D	
Non-volatile memory	TEDS 1451.4 compatible	
Vibration limit	500 g peak	
Shock limit	5000 g peak	
Electromagnetic sensitivity, equivalent g	100 µg/gauss	
Sealing	Hermetic	
Temperature range	-50 °C to 120 °C (-58 °F to 248 °F) ± 7 %	
Warranty	One-year	

Tachometer specifications		
Dimensions (DxW)	2.86 cm x 12.19 cm (1.125 in x 4.80 in)	
Weight	96 g (3.4 oz) with cable	
Power	Powered by 810 Vibration Tester	
Detection	Laser Diode Class 2	
Range	6.0 rpm to 99,999 rpm	
Accuracy	6.0 rpm to 5999.9 rpm	± 0.01 % and ± 1 digit
	5999.9 rpm to 99999 rpm	± 0.05 % and ± 1 digit
Resolution	0.1 rpm	
Effective range	1 cm to 100 cm (0.4 in to 39.27 in)	
Response time	1 second (> 60 rpm)	
Controls	Measure on/off transparent button	
Interface	6 Pin Mini DIN	
Cable length	50 cm (19.586 in)	
Warranty	One-year	
Tachometer accessories	Reflective tape:1.5 cm x 52.5 cm (0.59 in × 20.67 in)	

Viewer PC Software	
Minimum hardware requirements	1 GB RAM
Operating system requirements	Windows XP, Vista, Windows 7

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Viewer PC Software

The Fluke 810 Vibration Tester includes Viewer PC software, expanding your data storage and tracking capability. With Viewer you can:

- Generate diagnostic reports and track the severity of your machine's condition
- Create machine setups with the convenience of your keyboard and mouse, and transfer the data to your 810 Vibration Tester
- View diagnosis and vibration spectra in greater detail
- Import and store JPEG images and Fluke IS2 thermal images for a more complete view of your machine's condition



Industry-leading training…on your terms

The Fluke 810 Vibration Tester takes the guesswork out of diagnosing the most common mechanical problems, but a better understanding of vibration and its impact on your equipment will help you or your team be more aware of issues that may come up in the future. Fluke has partnered with Mobius Institute, an industry leader in vibration training, to provide you with a self-paced DVD training program using award-winning Mobius Institute interactive training tools. This DVD is available with purchase and will help you learn more about the basics of vibration and how to fully utilize the features and functionality of the Fluke 810 Vibration Tester.

Ordering information

Fluke-810 Vibration Tester

Included equipment
Vibration Tester with diagnostic technology, tri-axial TEDS accelerometer, accelerometer magnet mount, accelerometer mounting pad kit with adhesive, accelerometer quick-disconnect cable, laser tachometer and storage pouch, smart battery pack with cable and adapters, shoulder strap, adjustable hand strap, Viewer PC software, mini-USB to USB cable, getting started guide, illustrated quick reference guide, users manual CD-ROM, training DVD, and hard carrying case.



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