

PRODUCT DATA

Quality Control Laser Doppler Vibrometer — Type 8337

Uses

- On-line non-contact industrial vibration testing in harsh environments
- Optimised for production testing applications on difficult surfaces
- Quality control of automotive mechanical components (gearboxes, steering systems, alternators, exhaust lines, cooling systems, transmissions, bearing damage detection, braking systems)
- Quality control of consumer products on production line (washing machines, television tubes, computer parts, telephones, vacuum cleaners, power tools)
- Quality control testing of mechanical machinery (compressors, pumps, AC and DC motors)

Features

- High-quality and compact, durable die-cast aluminium housing
- Rugged mechanical, electrical and optical construction
- Velocity range up to 500 mm/s (p-p) over 3 ranges
- Digital decoding technology allowing precise measurement on difficult surfaces
- Frequency range up to 22 kHz
- Dynamic range of >90 dB over full bandwidth
- Resolution of 0.02 $\mu\text{m/s}/\sqrt{\text{Hz}}$

Quality Control Laser Doppler Vibrometer Type 8337 is a compact, rugged instrument optimised for non-contact vibration measurement on production lines. The increased sensitivity of the vibrometer is particularly well-suited for difficult surfaces with low reflectivity, poor light scattering characteristics and for the analysis of low vibration amplitudes. Type 8337 is based on built-in, sophisticated digital decoding technology and signal processing. The advanced opto-electronic architecture allows precise and reliable characterisation of mechanical vibration. This all-in-one vibration sensor integrates optics and electronics in a compact IP 64 protected housing.

Type 8337 finds its natural applications in on-line vibration monitoring for automotive, aerospace, or consumer products components production. The working distance of the instrument ranges from 90 mm to 30 m,



- Stand-off distance from 90 mm to 30 m
- Reliable measurements through precise 24-bit digital signal processing
- Safe setting of ranges and filters through software for production environments
- Eye-safe operation (Class II laser)
- Short setup time
- Intuitive and easy to operate
- Easily connected to a data acquisition system (such as Brüel & Kjær's PULSE™ Multi-analyzer) or a process controller
- Very low level of drop-out noise in any measurement setup, ensuring fast and reliable measurements
- Traceable calibration
- Signal strength indicator through output signal (0 – 5 V)
- Signal strength bar display on the instrument

though for production application, much shorter distances are recommended.

Type 8337 comes either in a fixed focus or variable focus version, allowing the instrument to be used in production environments where the focus length is fixed in the setup, or in situations where the stand-off distance should be changed. The variable focus version has a lockable focus lens for difficult environments subjected to vibration or shocks.

Settings can be configured through the software including definition of the measurement range, either: 20 mm/s, 100 mm/s, or 500 mm/s; and the filter settings: One digital low-pass filter (FIR filter with cut-off at 1 kHz, 5 kHz, or 22 kHz), and one analog high-pass filter (100 Hz), which allows precise filtering of unwanted frequency components in the analog output velocity signal.

Type 8337 is supplied with a 5 m open-ended power cable software and a PC interface cable (RS-232). A range of accessories is also available.

Specifications – Quality Control Laser Doppler Vibrometer Type 8337

General Specifications			
Frequency Range	0.5 Hz to 22 kHz		
Dynamic Range	>90 dB over full bandwidth		
Calibration Accuracy	2% (manufacturer calibrated)		
Propagation Delay (typical)	1.1 ms		
Power	11 – 14.5 V DC, max. 1 A		
Software Configured High-pass Filter	100 Hz on/off (analog, 3rd order Butterworth 60 dB/dec)		
Software Configured Low-pass Filter	FIR filter cut-off at 1 kHz, 5 kHz or 22 kHz, roll-off >120 dB/dec		
	Range 1	Range 2	Range 3
Software Configured Velocity Range	±20 mm/s (p-p)	±100 mm/s (p-p)	±500 mm/s (p-p)
Software Configured Sensitivity	5 mms ⁻¹ /V	25 mms ⁻¹ /V	125 mms ⁻¹ /V
Output Velocity Resolution (RMS) ^a	≤0.02 μm/s/√Hz	≤0.02 μm/s/√Hz	≤0.1 μm/s/√Hz
Physical Specifications			
Signal Output Connectors	1. Industrial connector for supply voltage 2. Signal strength level and velocity output 3. Connector for RS-232 cable for software settings		
Housing Protection	IP 64 standard		
Dimensions	288 mm/314 mm with lens × 148 mm × 86 mm (11.3"/12.3" with lens × 5.8" × 3.3")		
Weight	<3.5 kg (7.71 lb.)		
Optics			
Optical System	1. Fixed focus (ff) lens: 238 mm (9.3") – optimal stand-off distance 2. Variable focus (vf) lens: 90 mm (3.5") to approximately 30 m (98.43') stand-off distance. Best signal at 100 mm + n × 138 mm (3.9" + n × 5.4"). n = 0, 1, 2, ...: 100 mm, 238 mm, 376 mm, ...		
Laser and Safety	<1 mW output power, safety class II, He-Ne visible 632.8 nm laser (red light) lens shutter		
Environmental			
Ambient Temperature	+5°C to +40°C (+41°F to +104°F)		
Relative Humidity	Up to 80%		
Compliance with Standards			
International Standards	Compliant with CE and C-Tick markings. Compliant with EMC Emissions EN 61000-3-2 and EN 61000-3-3. Compliant with EMC Immunity EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6 and EN 61000-4-11		



a. The resolution is defined as the RMS signal amplitude at which the signal-to-noise ratio is 0 dB.

Ordering Information

Quality Control Laser Doppler Vibrometer Type 8337

which includes the following accessories:

- Main Sensor Unit
- 5 m (16.4') open-ended Power Cable
- User Manual
- CD with software application

- Laser Safety Inspection and Test Report
- EC Declaration of Conformity
- Certificate of Traceable Calibration

Optional Accessories

- Carrying Bag KE-1011
- Protective Case KE-1012
- Power Supply ZG-0451

- Mirror Set UA-1670
- Mounting Plate UA-1671
- Retro-reflective Tape QA-0137
- Tripod UA-0989
- Power Cable for Cigarette Lighter AQ-0670

Brüel & Kjær reserves the right to change specifications and accessories without notice

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