

# PRODUCT DATA

## Quality Control Laser Doppler Vibrometer — Type 8337

### USES

- On-line non-contact industrial vibration testing in harsh environments
- 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  $\mu\text{m/s}/\sqrt{\text{Hz}}$
- Stand off distance from 90 to 3000 mm
- Reliable measurements through precise 24 Bit digital signal processing

### Optimised for Production Testing Applications on Difficult Surfaces

The 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 one compact IP 64 protected housing.



- 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™) 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 (0-5V)
- Signal strength bar display on the instrument

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 3000 mm, although 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 of Type 8337 has a lockable focus lens for difficult environments subjected to vibration or shocks.

The measurement range of Type 8337 can be set through software (RS-232 interface to PC). 3 measurement ranges can be set: 20 mm/s, 100 mm/s, and 500 mm/s. Filter settings can also be set by software: one digital low pass filter (FIR filter with cut-off at 1 kHz, 5 kHz, or 22 kHz), and one analogue high pass filter (100 Hz). This allows precise filtering of unwanted frequency components in the

analogue output velocity signal. Type 8337 is supplied with a 5 meter long interconnecting power cable (open-ended cable) for integration into process control systems in production environments, a configuration software and interface cable to PC (RS-232). A range of accessories is also available.

## Specifications – Quality Control Laser Doppler Vibrometer Type 8337

General Specifications			
Software Configured High-pass Filter	100 Hz on/off (analogue, 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		
Frequency Range	0.5 Hz to 22 kHz		
Dynamic Range	>90 dB over full bandwidth		
Calibration Accuracy	2% (manufacturer calibrated)		
Power	11 – 14.5 V DC, max. 1 A		
	<b>Range 1</b>	<b>Range 2</b>	<b>Range 3</b>
Software Configured Velocity Range	±20 mm/s (p-p)	±100 mm/s (p-p)	±500 mm/s (p-p)
Software Configured Sensitivity	5 mms <sup>-1</sup> /V	25 mms <sup>-1</sup> /V	125 mms <sup>-1</sup> /V
Output Velocity Resolution (RMS) <sup>a</sup>	≤0.02 μm/s/√Hz	≤0.02 μm/s/√Hz	≤0.1 μm/s/√Hz
Housing			
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 × 148 mm × 86 mm (314 mm with lens), 11.3" × 5.8" × 3.3" (12.3" with lens)		
Weight	< 3.5 kg (7.71 lb.)		
Optics			
Optical System	1. Fixed focus lens (ff); 238 mm (9.3") optimal stand off distance 2. Variable focus lens (vf); 90 mm (3.5") to app. 3 m (118.1") 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, etc		
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	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

Type 8337 includes the following accessories:	EC Declaration of conformity	UA 1670	Mirror Set
Main Sensor Unit	Certificate of Traceable Calibration	UA 1671	Mounting Plate
5 m long power cable (open-ended)	<b>Optional Accessories</b>	QA 0137	Retro-reflective Tape (Roll)
User Manual	KE 1011 Carrying Bag	UA 0989	Tripod
CD with software application	KE 1012 Protective Case	AQ 0670	Power cable for cigarette lighter
Laser Safety Inspection and Test Report	ZG 0451 Power Supply		

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