

# PRODUCT DATA

## Quality Control Laser Doppler Vibrometer — Type 8336

### USES

- On-line non-contact industrial vibration testing
- 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 100 mm/s (p-p)
- Frequency Range up to 25 kHz
- Dynamic Range of > 80 dB over full bandwidth
- Resolution of 0.2  $\mu\text{m/s}/\sqrt{\text{Hz}}$
- Stand off distance from 90 to 3000 mm
- 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
- Easily integrated in a production testing environment
- 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

### Optimised for production testing applications

The Quality Control Laser Doppler Vibrometer Type 8336 is a compact, rugged instrument optimised for non-contact vibration measurement on production lines. The increased sensitivity of the vibrometer is particularly well suited to surfaces with low reflectivity, such as rubber and die cast metal. Type 8336 is based on built-in, sophisticated analogue decoding technology, and opto-electronic architecture, allowing precise characterisation of mechanical vibration. This all-in-one vibration sensor integrates optics and electronics in a single compact IP 64 protected housing.

Type 8336 finds its natural applications in on-line vibration monitoring for automotive, aerospace, or consumer products component production. The working distance of the instrument ranges from 90 mm to 3000 mm, although

for production applications, much shorter distances are recommended.

Type 8336 comes either in a fixed focus version or a 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 possesses a lockable focus lens for difficult environments subjected to vibration or shocks.

The measurement range of Type 8336 is factory configured, and can be set either for 20 mm/s or 100 mm/s. The instrument can also be factory configured with a high pass filter (with a cut-off frequency of 20 Hz), when unwanted low frequency vibrations are present in the environment.

The system is intended for measurements on cooperative surfaces, with moderate to good scattering properties. For applications with poorly scattering surfaces and measurements with small vibration levels requiring a higher velocity resolution, Brüel & Kjær Type 8337 should be chosen.

Type 8336 provides the optical signal quality output and velocity signal output from 2 connectors on the rear of

the instrument. The velocity output is an analogue voltage proportional to the vibration velocity of the measured object.

Type 8336 is supplied with a 5 meter long interconnecting power cable (open-ended cable) for integration into process control systems in production environments. A range of accessories is also available.

## Specifications – Quality Control Laser Doppler Vibrometer Type 8336

General Specifications	
Factory Configured Velocity Range (p-p)	±20 mm/s or ±100 mm/s
Factory Configured High-pass Filter	22 Hz on/off (analogue, 3rd order Butterworth 60 dB/dec)
Factory Configured Sensitivity	5 mms <sup>-1</sup> /V or 25 mms <sup>-1</sup> /V
Velocity Resolution (RMS) <sup>a</sup>	<0.2 µm/s/√Hz
Frequency Range	0.2 Hz to 25 kHz
Dynamic Range	>80 dB over full bandwidth
Calibration Accuracy	±1%
Power	11 – 14.5 V DC, max. 1 A
Housing	
Signal Output Connectors	1. Industrial connector for supply voltage 2. Signal strength level and velocity output
Housing Protection	IP 64 standard
Dimensions	299 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) laser shutter
Environmental	Ambient Temperature: +5°C to +35°C (+41°F to +95°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 8336 includes the following items:  
Main Sensor Unit  
5 m long power cable (open-ended)  
User Manual  
Laser Safety Inspection and Test Report  
EC Declaration of conformity  
Certificate of Traceable Calibration

### Optional Accessories

KE 1011 Carrying Bag  
KE 1012 Protective Case  
ZG 0451 Power Supply  
UA 1670 Mirror Set  
UA 1671 Mounting Plate

QA 0137 Retro-reflective Tape (Roll)  
UA 0989 Tripod  
AQ 0670 Power cable for cigarette lighter

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