

The HSV-100 High Speed Vibrometer measures vibration displacements and velocities up to 40 m/s, simultaneously, with an arbitrary number of measurement channels.

Vibration of the sample can be measured reliably even when space is restricted, thanks to the very compact optical sensor head coupled to a separate laser unit. One benefit of this non-contact method is that structural motion is measured more accurately.

State of the art digital decoding in the controller achieves high resolution signal outputs with low noise for clear and precise results.

Several dedicated HSV-100 models are available for different measurement tasks: The single-channel version is the solution for common high speed vibration measurement. The dual-channel configuration allows differential vibration measurement, which automatically compensates for any background vibration of the test rig. An arbitrary number of extra channels can be added for true multi-channel differential vibration analysis.



### Benefits

- High resolution real-time measurement
- Intuitive “point and shoot” operation
- Two- and multi-channel measurement with correct phase relationships
- IP64 rated sensor head housing for extreme industrial applications
- Frequency bandwidth 50 kHz, 250 kHz optional
- Eye-safe class 2 laser

## HSV-100 High Speed Vibrometer

Optical Vibration Measurement  
at High Speeds

Datasheet



# Technical Data



## Controller Specifications

Controller model	HSV-E-100-01	HSV-E-100-02	HSV-E-100-01MC
No. of measurement channels	1: Channel A	2: Channel A, Channel B	1: Channel A <sup>1</sup>
Signal outputs <sup>2</sup>	Velocity: A Displacement: A	Velocity: A, B, A-B Displacement: A, B, A-B	Velocity: A, B, A-B Displacement: A, B, A-B
Analog velocity output	BNC, +/-8 V	BNC, +/-8 V (+/-12 V for A-B)	BNC, +/-8 V (+/-12 V for A-B)
Analog displacement output	BNC, +/-10 V	BNC, +/-10 V	BNC, +/-10 V
Frequency bandwidth	0 Hz ... 50 kHz; 0 Hz ... 50 kHz / 250 kHz switchable (optional)		
Max. velocity <sup>3</sup>	40 m/s	40 m/s	40 m/s
Velocity ranges	8 ranges: 25 mm/s/V ... 5 m/s/V		
Displacement ranges	11 ranges: 0.25 mm/V ... 256 mm/V		
Tracking filter	4 settings (slow, medium, fast, off)		
Signal level	Bargraph at front panel; Output as voltage signal (BNC, 0 ... 5 V)		
PC interface	USB 1.1, remote control of controller settings		

## Optical Specifications

Sensor head model	HSV-I-100-FF	HSV-I-100-V25	HSV-I-100-V40
Laser	Helium Neon (HeNe), 633 nm, visible red laser beam		
Laser safety class	Class 2 (eye-safe), <1 mW		
Working distance	fixed: 520 mm	variable: 110 mm ... approx. 10 m	variable: 200 mm ... approx. 10 m

## General Specifications

System component	HSV-E-100 Controller	HSV-I-100 Sensor Head: Laser Unit	HSV-I-100 Sensor Head: Sensor
Dimensions [L x W x H]	450 mm x 360 mm x 150 mm (19" x 14" x 6")	340 mm x 130 mm x 115 mm (w/o handle)	174 mm x 48 mm x 39 mm (HSV-I-100-FF Sensor)
Weight	9.5 kg	6 kg	0.5 kg
Protection class	IP20	IP64	IP64
Cable length	Electrical main cable between Controller and Sensor Head: 10 m (detachable); Fiber cable between Laser Unit and Sensor: 3 m (permanent)		
Operating temperature	+5 °C ... +40 °C		
Storage temperature	-10 °C ... +65 °C		
Relative humidity	max. 80%, non-condensing		
Mains voltage	100 ... 240 VAC +/-10%, 50/60 Hz		
Power consumption	max. 70 VA		

- Additional measurement channel for HSV-E-100-02 Dual Channel Controller; the HSV-E-100-02 can be extended by an arbitrary number of additional channels.
- All signal outputs are available simultaneously.
- For the differential signal A-B velocities up to 60 m/s are measurable due to the extended voltage range of the signal output.



## Options and Accessories:

HSV-AK-800 Beam Steering Unit

Optical beam deflection system for easy alignment of the laser beam especially for valve train measurement applications; compatible with the HSV-I-100-FF Sensor Head.

**Polytec GmbH (Germany)**  
Polytec-Platz 1-7  
76337 Waldbronn  
Tel. +49 7243 604-0  
info@polytec.de

**Polytec GmbH (Germany)**  
Vertriebs- und Beratungsbüro  
Schwarzschildstraße 1  
12489 Berlin  
Tel. +49 30 6392-5140

**Polytec, Inc. (USA)**  
North American Headquarters  
16400 Bake Parkway  
Suites 150 & 200  
Irvine, CA 92618  
Tel. +1 949 943-3033  
info@polytec.com

**Central Office**  
1046 Baker Road  
Dexter, MI 48130  
Tel. +1 734 253-9428

**East Coast Office**  
25 South Street, Suite A  
Hopkinton, MA 01748  
Tel. +1 508 417-1040

**Polytec Ltd. (Great Britain)**  
Lambda House  
Batford Mill  
Harpenden, Herts AL5 5BZ  
Tel. +44 1582 711670  
info@polytec-ltd.co.uk

**Polytec France S.A.S.**  
Bâtiment Orion – 1er étage  
39, rue Louveau  
92320 Châtillon  
Tel. +33 1 496569-00  
info@polytec.fr

**Polytec Japan**  
Arena Tower, 13th floor  
3-1-9, Shinyokohama  
Kohoku-ku, Yokohama-shi  
Kanagawa 222-0033  
Tel. +81 45 478-6980  
info@polytec.co.jp

**Polytec South-East Asia Pte Ltd**  
Blk 4010 Ang Mo Kio Ave 10  
#06-06 TechPlace 1  
Singapore 569626  
Tel. +65 64510886  
info@polytec-sea.com

**Polytec China Ltd.**  
Room 1026, Hanwei Plaza  
No. 7 Guanghua Road  
Chaoyang District  
100004 Beijing  
Tel. +86 10 65682591  
info-cn@polytec.com

**Álava Ingenieros GRUPO ALAVA**  
Edificio Antalla, Albasanz 16, 28037 Madrid  
+34 91 567 97 00 | alavaingenieros.com | alava@alava-ing.es  
Madrid | Barcelona | Zaragoza | Lisboa | Lima | Quito | Texas

www.polytec.com

