

# IVS-300 *Industrial Vibration Sensor*



## IVS SERIES INDUSTRIAL SENSORS

- IVS-200 Industrial Vibration Sensor
- IVS-300 Digital Industrial Vibration Sensor
- Accessories for IVS Series
  - Beam Deflector
  - Programming Kit
  - Additional Parts

## DIGITAL ON-LINE VIBRATION SENSING

*The Polytec Industrial Vibration Sensor IVS-300 is an integrated single-box digital vibrometer, specifically developed for non-contact vibration measurement in production test environments. It enables fast, accurate product quality monitoring and accelerates time-to-market. The IVS-300 features a robust and compact design, sealed according to IP-64 standards to cope with the challenges of harsh industrial areas.*

### Designed for Measurements on Difficult Surfaces

The IVS-300 exploits the latest digital signal processing techniques to ensure accurate and repeatable measurements from uncooperative surfaces. It is the first choice for non-contact measurements on "difficult" surfaces with poor light scattering characteristics and for the analysis of low vibration amplitudes requiring high resolution.

The IVS-300 is easily retrofitted into existing production lines because the laser interferometer optics and electronics are all contained within a single, compact and robust industrial housing.

All range and filter settings are software configured via a serial interface, leaving no risk of accidental changes in key settings on the production line. Vibration signal output is via an analog ( $\pm 4$  V), or digital audio interface (S/P-DIF).

### Key Features of the IVS-300 Industrial Vibration Sensor

- Robust and compact single-box design, eye-safe visible low power laser (Class II)
- Simple to install and operate
- Easy to integrate into test rig applications and existing control systems
- Advanced digital signal electronics for lowest noise combined with highest sensitivity
- 0 to 22 kHz frequency response
- Velocity up to  $\pm 500$  mm/s (3 ranges)
- Analog velocity output and digital S/P-DIF audio interface compatible with VIBSOFT-SP and other acquisition systems supporting the S/P-DIF standard

## IVS-300 Technical Data

General Specifications			
Operating temperature	+5 °C ... +40 °C (41 °F ... 104 °F)		
Storage temperature	-10 °C ... +65 °C (14 °F ... 149 °F)		
Relative humidity	max. 80 %, non-condensing		
Protection rating	IP 64		
Dimensions [L x W x H]	302 mm x 114 mm x 55 mm (11.9 in x 4.5 in x 2.2 in)		
Weight	ca. 2.6 kg		
Power	11 V ... 14.5 V DC, max. 15 W		
Decoder type	DSP velocity decoder, 3 measurement ranges		
Velocity ranges	$\pm 20 \text{ mm s}^{-1}$	$\pm 100 \text{ mm s}^{-1}$	$\pm 500 \text{ mm s}^{-1}$
Scaling factor	$5 \text{ mm s}^{-1}/\text{V}$	$25 \text{ mm s}^{-1}/\text{V}$	$125 \text{ mm s}^{-1}/\text{V}$
Velocity resolution*	$< 0.02 \mu\text{m s}^{-1}/\sqrt{\text{Hz}}$	$< 0.02 \mu\text{m s}^{-1}/\sqrt{\text{Hz}}$	$< 0.1 \mu\text{m s}^{-1}/\sqrt{\text{Hz}}$
Frequency range	0 ... 22 kHz (digital output); 0.5 Hz ... 22 kHz (analog output)		
Filters	1. Digital low pass filter 1kHz / 5 kHz / 22 kHz (-1 dB), roll-off >120 dB/dec (analog and digital output) 2. Analog high pass filter 100 Hz (-3 dB) /off, roll-off about 60 dB/dec (analog output only)		
Outputs analog	$\pm 4 \text{ V}$ , 24-bit DAC, ranges: 5 / 25 / 125 (in $\text{mm s}^{-1}/\text{V}$ )		
Outputs digital	S/P-DIF (Sony/Philips Digital Audio Interface) 24 bit, 48 kSa/s		
Connectors	1. Industrial connector for voltage supply, optical signal level and velocity output 2. Connector for IVS-310 signal level indicator and RS-232 cable 3. Triax connector for S/P-DIF digital output		
Optical system	Fixed focus lens (ff): 240 mm stand-off distance Variable focus lens (vf): 90 mm to 3 m stand-off distance		
Laser safety	< 1 mW output power, laser safety class II, visible 632.8 nm laser		

\* The resolution is defined as the signal amplitude (rms) at which the signal-to-noise ratio is 0 dB, measured from 3M Scotchlite® tape.

Accessories	
IVS-310	Signal level display, cable length 2 m
IVS-320	Connection box with power supply (100 V ... 240 V AC), BNC output connectors for velocity signal/signal level and remote control input for laser on/off
IVS-Prog	Programming kit for adjusting the velocity range and filter settings
OFV-P7	Adjustable mounting plate recommended for fitting IVS-300 in industrial production/QC lines
IVS-320-C	Cable for connection of IVS-300 to IVS-320 connection box
IVS-200-C	Cable for external connection of IVS-300 to process control systems
VIB-A-100	Beam deflector and component parts, see separate data sheet

Compliance with Standards	
Electrical safety	IEC/EN61010
EMC	IEC/EN61326
Laser safety	IEC /EN60825-1
CE	Mark (EMC, laser safety, LVD)



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