The IVS-500 Industrial Vibrometer is the key to reliable acoustic quality inspection, clear and repeatable pass-fail or structure-borne noise analysis in-line.

With its rugged and robust design, the optical sensor measures reliably in demanding industrial environments, without contact and therefore non-invasively, on virtually all technical surfaces. Productivity is improved by reducing false-alarms and rejects.

Thanks to its simple setup, wide frequency range up to 100 kHz, variable working distances and application-specific accessories, the IVS-500 easily adapts to any production line.

Highlights

- Flexible setup with large and variable working distances up to 3 m
- Non-contact and reliable with laser precision
- Auto and remote focus for best signal level
- Versatile with large bandwidth up to 100 kHz

IVS-500 Industrial Vibration Sensor

Acoustic quality control with laser precision

Datasheet

Technical data

Metrological specifications					
Model	Version	Max. frequency	Focus	Velocity full scale (peak)	# of measurement ranges
Entry	EM	10 kHz	Manual	0.5 m/s	6
	ER	10 kHz	Remote	0.5 m/s	6
Basic	BM	25 kHz	Manual	1.0 m/s	7
	BR	25 kHz	Remote	1.0 m/s	7
High frequency	HR	100 kHz	Remote	2.0 m/s	8

Measurement range	mm/s/V	2.5	5	12.5	25	50	125	250	500
Full scale output (peak)	mm/s	10	20	50	100	200	500	1,000	2,000
Typical resolution[1] depending on adjusted frequency bandwidth									
10 kHz	µm s^{-1}/√Hz	< 0.01	< 0.01	< 0.02	< 0.02	< 0.04	< 0.1	< 0.2	< 0.4
25 kHz	µm s^{-1}/√Hz	< 0.02	< 0.02	< 0.02	< 0.02	< 0.04	< 0.1	< 0.2	< 0.4
100 kHz	µm s^{-1}/√Hz	< 0.03	< 0.03	< 0.03	< 0.03	< 0.04	< 0.1	< 0.2	< 0.4

[1] The noise-limited resolution is defined as the signal amplitude (rms) at which the signal-to-noise ratio is 0 dB with 1 Hz spectral resolution. measured on 3M Scotchlite™ Tape (reflective film). The typical value refers to the center of the operating frequency range.

Decoder type	Digital velocity decoder, 6 ... 8 measurement ranges [1]
Filters	Adjustable frequency bandwidth: 1 kHz, 5 kHz, 10 kHz , 25 kHz [2], 50 kHz [3], 100 kHz [3] Digital high pass filter 13 Hz / 104 Hz (-3 dB) ASE Adaptive Signal Enhancement for signal optimization on uncooperative surfaces
Analog output	±4 V
Connectors	Industrial connector for voltage supply, optical signal level and velocity output Connector for IVS-A-510 signal level indicator and RS-232 serial interface

[1] Depending on model.
[2] Only available for models IVS-500 BM, BR and HR.
[3] Only available for model IVS-500 HR.

Optical specifications		
Laser type	Helium Neon (HeNe)	
Laser class	Class 2, < 1mW output power, eye-safe	
Laser wavelength	633 nm, visible red laser beam	
Focus	Manual (M)	Remote (R)
Minimum stand-off distance [1]	86 mm	47 mm
Maximum stand-off distance [1]	3 m	3 m
Visibility maxima [1, 2]	x = 53 mm + n · 138 mm; n = 0, 1, 2, 3, ...	

[1] For definition of stand-off distance see drawing on last page, dimension "x".
[2] The optimal stand-off distances where the signal level is at its maximum are called visibility maxima. The visibility maxima recur every 138 mm corresponding to the laser cavity length.

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 class	IP 64
Dimensions	see drawing on last page
Weight	ca. 3.1 kg
Power supply	11 V ... 14.5 V DC , max. 15 W

Accessories for process integration

Accessories for optics

VIB-A-210 **90° deflection unit**

VIB-A-220 **Protective window,**
VIB-A-221 **Protective window (flat)**
protects front lens

VIB-A-230 **Air purge unit**
for oily and dusty environment

VIB-A-240 **Pneumatic beam shutter**
protects optics when not measuring

VIB-A-310 **Alignment tool**
for easy perpendicular beam setup

VIB-A-320 **Folding ruler**
shows visibility maxima for optimal working distance

VIB-A-P07 Adjustable mounting plate (pan/tilt)

VIB-A-P09 Alignment device (pan/tilt)

Control / data acquisition

PC / PLC

IVS-Prog
Programming Kit

VibSoft-20
2-channel USB data acquisition up to 20 kHz

VibSoft-8x
2- or 4-channel data acquisition up to 80 kHz

QuickCheck
Evaluation Software

... or any analog data acquisition

Wiring / electrical accessories

IVS-E-500 Junction box
with I/O controls, BNC output, USB interface, AC power supply (100 ... 240 V) and integrated Signal Level Display

IVS-A-510 Signal level display
Handheld Unit

Two wiring alternatives with or without IVS-E-500 Junction Box

Using junction box:

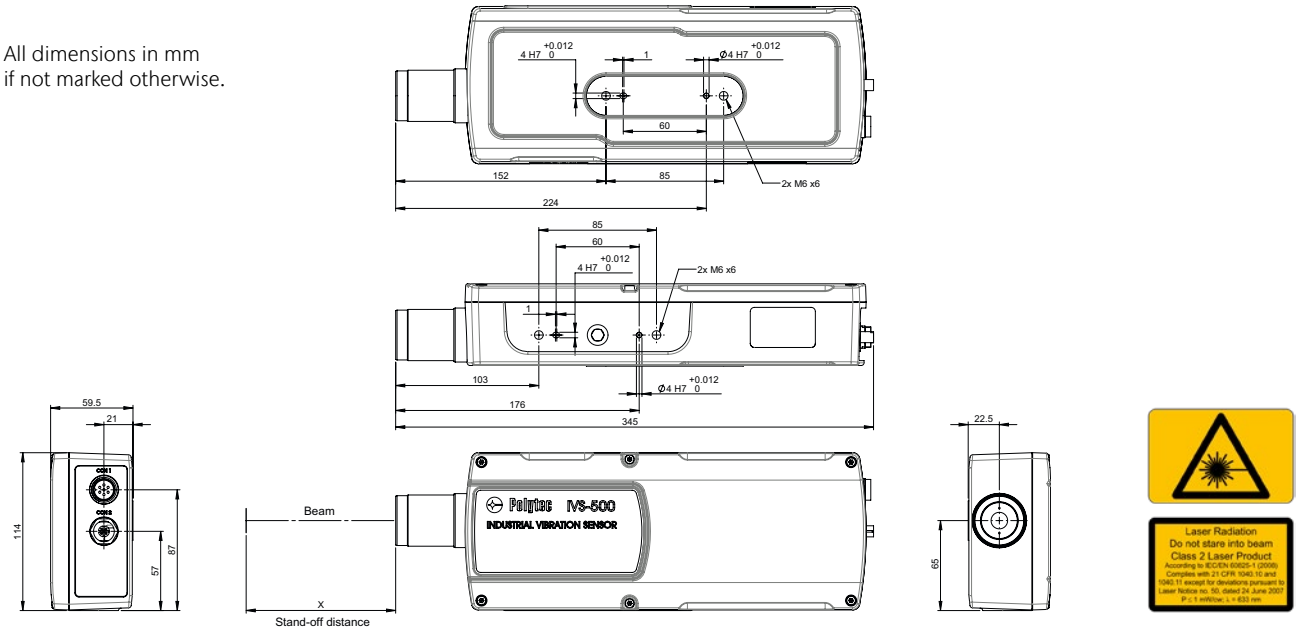
1. **IVS-C-500** Main connecting cable
3. **IVS-C-520** Serial connecting cable
5. Measured data (BNC) and configuration data (USB)

Direct connection:

2. **IVS-C-510** Main connecting cable with jack and open end
4. **IVS-C-530** RS-232 cable

Compliance with standards	
Laser safety	IEC/EN 60825-1 (Safety of laser products, complies to US 21 CFR 1040.10 and 1040.11 except for deviations pursuant to laser notice no. 50, dated 24 June 2007)
Electrical safety	IEC/EN 61010-1 (Safety requirements for electrical equipment for measurement, control, and laboratory use)
EMC	IEC/EN 61326-1 (EMC requirements on emission and immunity – Electrical equipment for measurement, control, and laboratory use) Emission: Limit class B IEC/EN 61000-3-2 and 61000-3-3 Immunity: IEC/EN 61000-4-2 to 61000-4-6 and IEC/EN 61000-4-11

All dimensions in mm
if not marked otherwise.



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2018/05 - Technical specifications are subject to change without notice.