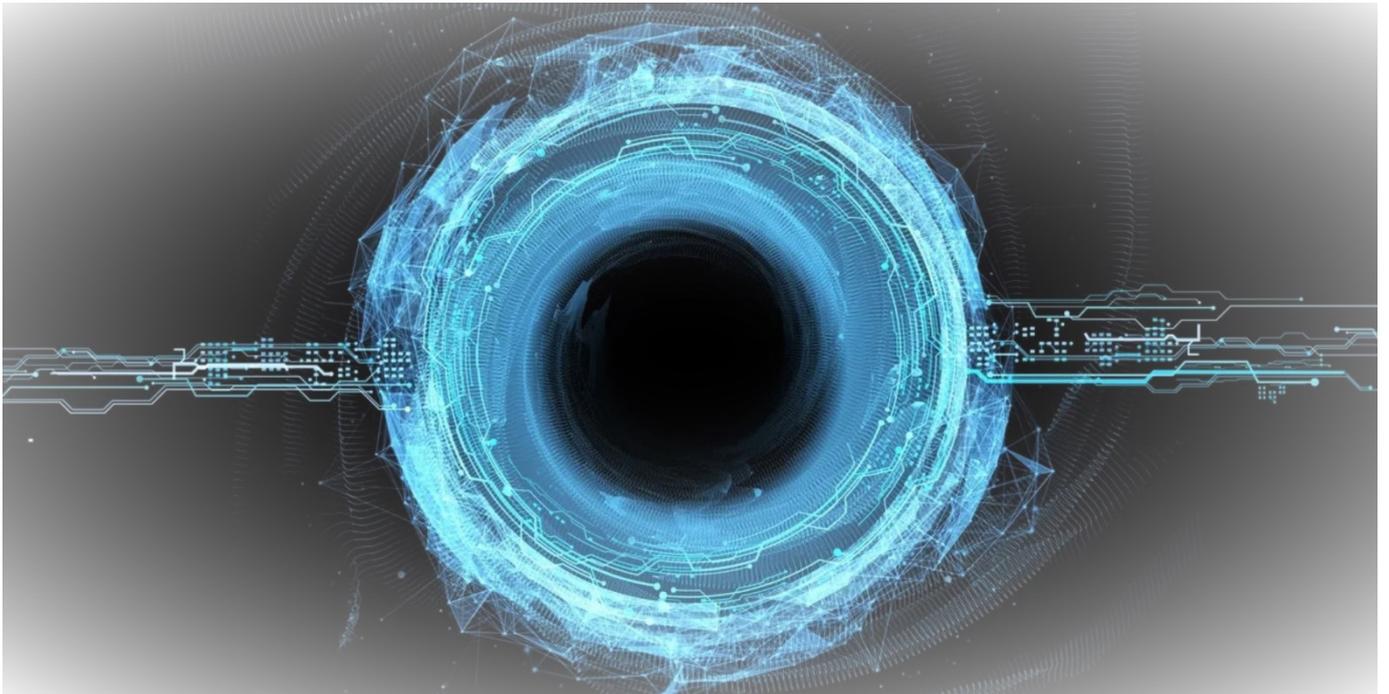




# OmniSensing Photonics



- **Established in 2015**
- **OmniSensing Photonics LLC is a leading technology company to provide innovative, customer-focused photonics sensing solutions and products for various scientific and industrial applications.**
- **Currently offering MV-H series laser vibrometer modules**
- **Web: [www.OmniSensingTech.com](http://www.OmniSensingTech.com)**

# OSP MV-H Series Laser Vibrometer Module



## Features

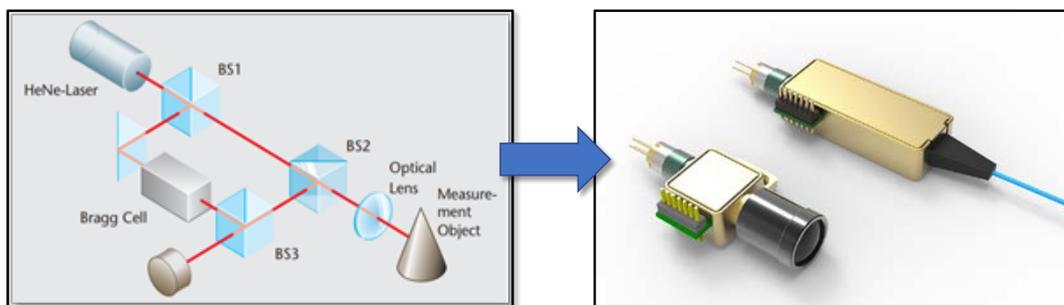
- Non-contact
- Small Form-factor
- High-resolution
- Wide Frequency Range

## Technology:

### Photonics Integration/All-in-one Packaging

OmniSensing Photonics has developed a miniaturized laser sensing platform, based on the photonics integrated circuits (PIC) technology, which enables precision measurement for different applications to be carried out on extremely low cost and lightweight structures. As image below presented, the laser diode, detector array and optical lens system, all packaged into a miniaturized laser sensor module after integration of optical interferometers with different delay lines.

Based on the proprietary DSP algorithm, the laser sensing platform of OmniSensing Photonics could detect multiple functional parameters, for instance, phase disturbing, displacement, vibration as well as speed, which enables the same measurement capability as conventional Triangulation type sensors.



### ■ Non-Contact

Non-contact measurement through remote laser detection scheme, non-invasive on DUT (Device Under Test).

### ■ Small Form-factor

Extreme small form-factor, easy to install; Digital interface, network ready, no controller needed.

### ■ High Resolution

Proprietary FMCW technology, high-resolutions.

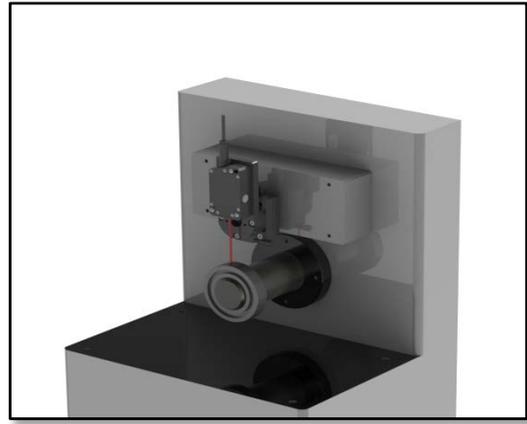
### ■ Wide Frequency Range

Sampled at 5Mps, measures vibrations from DC~2.5MHz.

**Applications:**



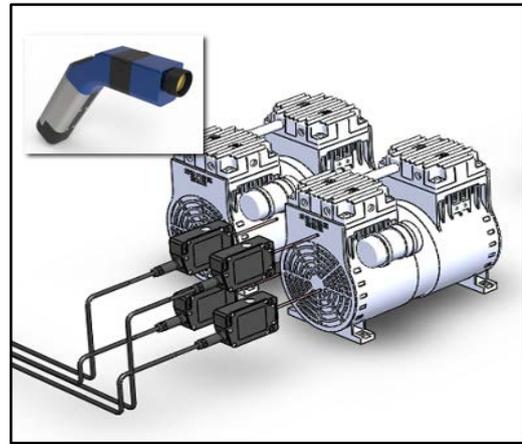
Speaker Characterization



Bearing Measurement



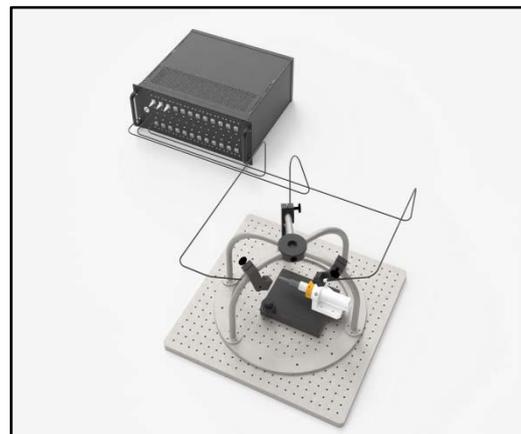
Ultrasonic Soldering Head Testing



Motor Vibration Testing (Permanent installation or handheld device)



Vibration Test Station w/ Integrated Digital Microscope



Multi-channel/3D Vibration Measurement

**Model Definition:**

Model Number	Description	Application
OSP-MV-H-S	Laser vibrometer module with fixed measurement distance (Working distance 50mm~200mm)	Industrial inline testing
OSP-MV-H-T	Laser vibrometer module with manually adjustable lens (Working distance 300mm~30m)	Research & Development
OSP-MV-H-F	Laser vibrometer module with fiber connector (Selectable working distance range per different optical probe)	Industrial inline testing, Research & Development

**Generic Specifications\*:**

Specs	OSP MV-H
Max. frequency	2.5MHz
Working distance	Determined by Model/Lens
Operation range	+/-15% of working distance
Velocity full scale	±4.5 m/s
Decoder range	Single range continuous
Typical resolution	See detail in noise density/resolution table
Analog output	No (contact for custom model)
Time trigger	Trigger in & out
Size	83.7x50x22 (mm <sup>3</sup> ) or larger
Weight	200g or lower
Operating temperature	0-50°C
Power supply	12-24V, typical 6W
Protection class	IP65
Laser class	Class 1, <5mW output
Laser wavelength	1310 nm (invisible near infrared, detector card included)
Data connection	Ethernet
Software	GUI & DLL (for system integration)

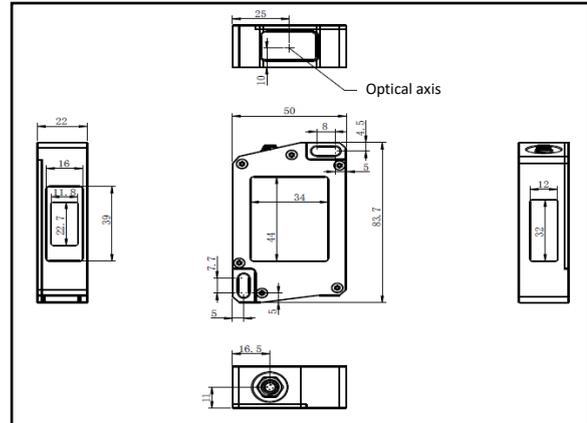
Model	Displacement Noise density	Displacement resolution	Velocity full scale	Displacement measurement repeatability(>10Hz)	Displacement measurement repeatability*(<10Hz)
MV-H1000	5pm/√Hz	1.28nm	4500 mm/s	1nm	10nm
MV-H2000**	0.3 pm/√Hz	0.16nm	4500 mm/s	0.5nm	10nm

\*: The above values are theoretical values. The factors affected by the actual test include the stability of temperature, humidity, air pressure, and the stability of the installation structure.

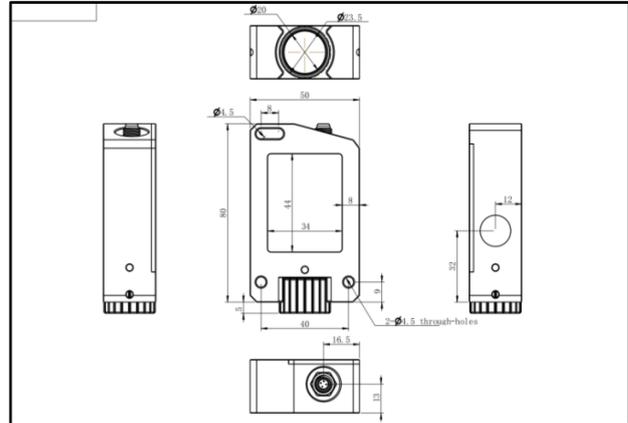
\*\* : High resolution edition with noise reduction HW/FW customization.

## Exterior & Mechanical:

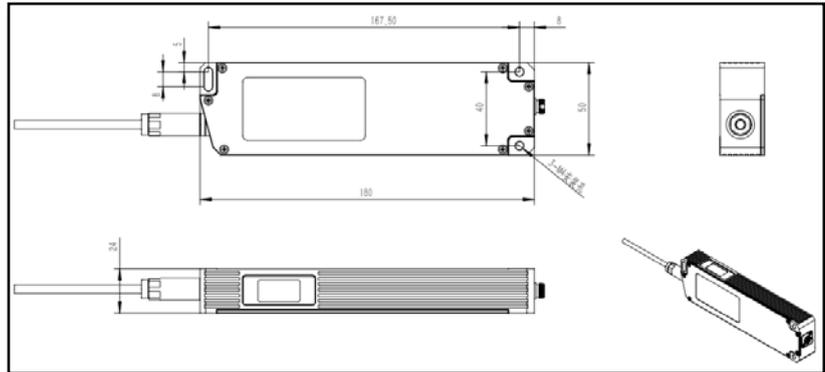
### 1) OSP-MV- H-S



### 2) OSP-MV-H-T

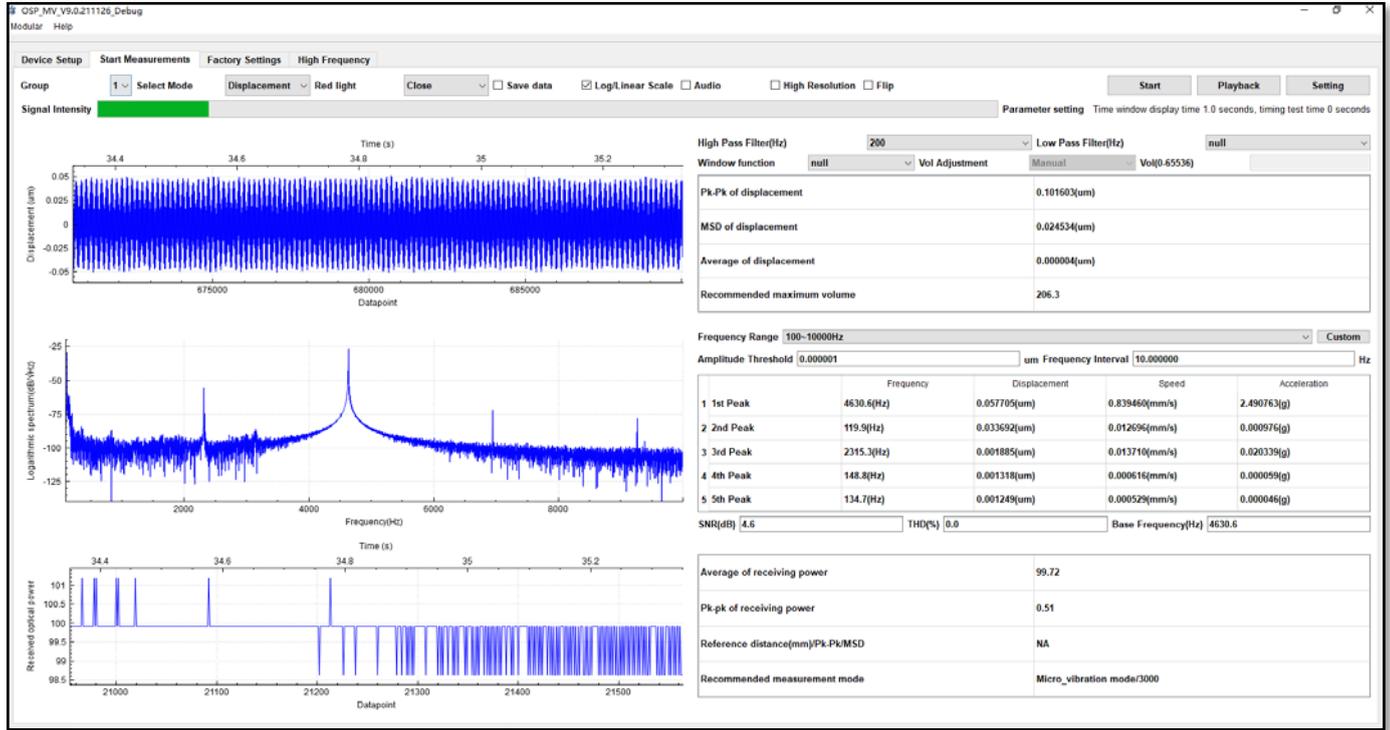


### 3) OSP-MV-H-F

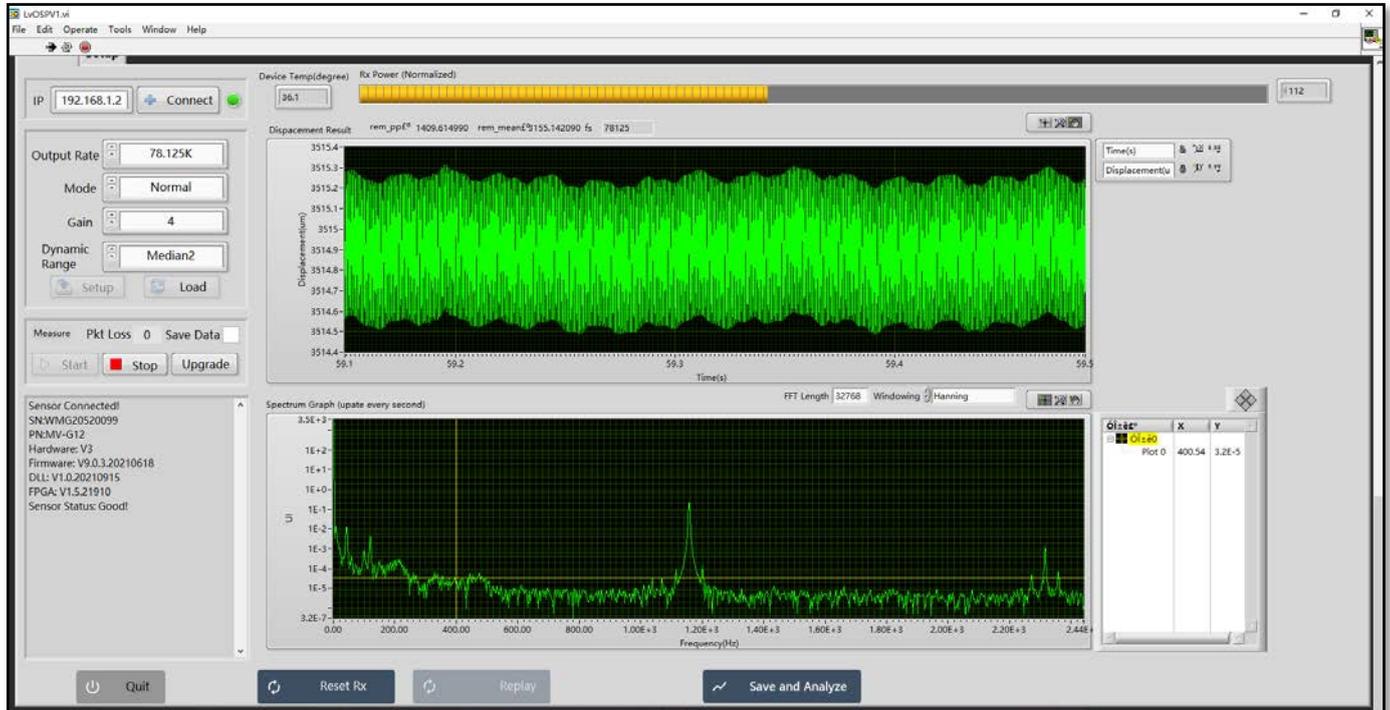


## Testing GUI:

Option 1: Standard testing GUI that can display real-time vibration waveform, in-time spectrum and receiving signal strength, etc.



Option 2: DLL+LabView based testing GUI, suitable for testing oriented customization.



Option 3: DLL+Matlab code, suitable research & development.

# OmniSensing, Sensing Coherently

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