



OmniSensing Photonics

Miniaturized Laser Sensing Probe

MV Series



Miniaturization/Non-contact/
Wide Frequency /High Resolution/Long Range

<u>Non-contact</u>	<u>Frequency</u>	<u>Resolution</u>	<u>Max. distance</u>
Laser sensing	DC~2.5MHz	20pm	4000mm

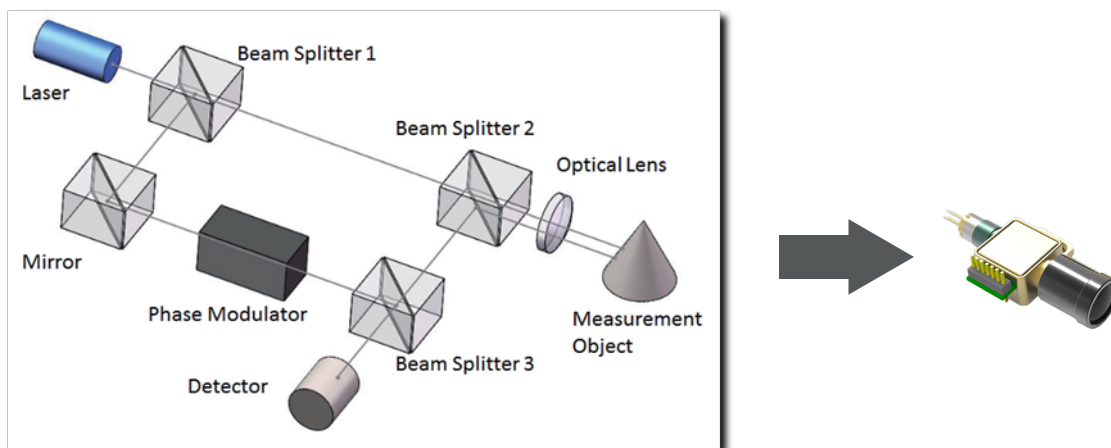
**SENSING
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Integrated / All-in-one technology

Integration of optical components has driven more complex designs and higher functionality.

Photonic integrated circuits can contain tens to hundreds of optical components including lasers, modulators, photo detectors and filters all integrated on a single substrate.

Optical interferometers with different delay line are first implemented onto a PIC chip. Next via a proprietary miniaturized laser sensing assembly, it is integrated with the PIC chip, laser diode, detector array and optical lens set. Utilizing specialized digital signal processing (DSP) algorithms, the OmniSensing laser platform could provide multiple sensing capabilities including instant displacement, vibration and optical phase measurement as used in LDV technique.



1 Non-contact

- The method of laser non-contact measurement has no harm to object and without contact scratches.

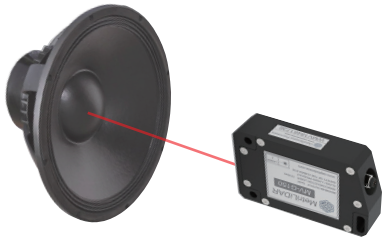
2 Miniaturization

- Though photonics integrated circuit (PIC) technology, both the optical coherent detection and reference paths are integrated into one single PIC chip. The laser and detector are integrated into the module to realize miniaturization and portability. Easy to install and measure smaller space.

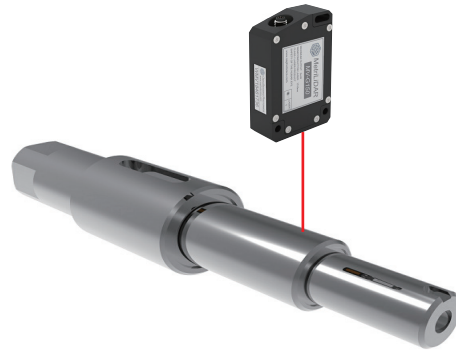
3 High Resolution

- Based on FMCW optical coherent detection technology with proprietary modulation/demodulation scheme, OmniSensing has developed a high resolution phase detection.

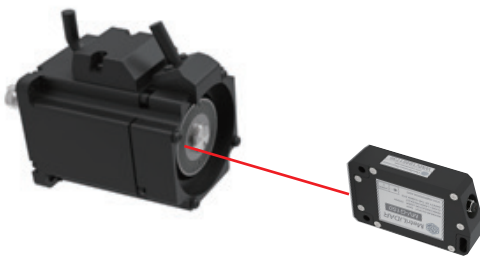
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Speaker characterization



Concentricity, eccentricity measurement on axial/bearing



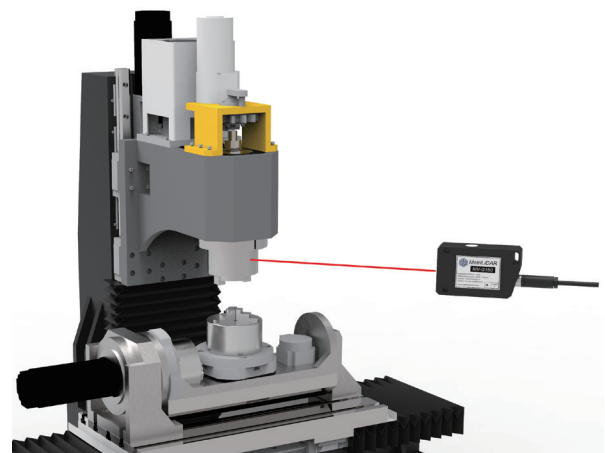
Motor optical coding disk detection



Vibration testing on car



Engine vibration detection



Vibration detection of machine and workpiece

2. SPECIFICATIONS

KEY SPECIFICATIONS					
Model	Vibration Noise Density	Vibration Amplitude Resolution	Maximum Vibratory Magnitude	Frequency Precision (>10Hz)	Frequency Precision *(<10Hz)
MV-H1000-xxxx-Fxx	5pm/ $\sqrt{\text{Hz}}$	1.28nm	1500 mm/s	1nm	10nm
MV-H1500-xxxx-Fxx	5pm/ $\sqrt{\text{Hz}}$	1.28nm	4500 mm/s	1nm	10nm
MV-H2000-xxxx-Fxx	0.3pm/ $\sqrt{\text{Hz}}$	0.16nm	1500 mm/s	0.5nm	10nm
MV-H2500-xxxx-Fxx	0.3pm/ $\sqrt{\text{Hz}}$	0.16nm	4500 mm/s	0.5nm	10nm
MV-H3000-xxxx-Fxx	0.3pm/ $\sqrt{\text{Hz}}$	0.02nm	1500 mm/s	0.1nm	10nm
MV-H3500-xxxx-Fxx**	0.3pm/ $\sqrt{\text{Hz}}$	0.02nm	4500 mm/s	0.1nm	10nm

* All values above are technically theoretical values , and actual values may differ due to the impact of temperature, humidity, air pressure stability and installing structure stability.

** Model Numbering: MV-H3500-2000-F28 MV Series- High (Sampling Frequency 5MHz)-Type Specification3500-Distance2000mm-Lens typeF28

GENERAL SPECIFICATIONS			
Base Distance (m)	0.06~40**	Protection Level	IP67
Frequency Range (MHz)	DC~2.5	Temparature Range (°C)	0~50
Laser Output (mW)	<5 *	Relative Humidity	35%~85%
Laser Wavelength (nm)	1310	Material	Aluminium alloy
Safety Level	CLASS I (eye safety)	Dimensions (mm ³)	83.7*50*22
Anti-glare Interference	>60000(lux)	Weight (g)	180
Power Supply voltage	12~24(V)	Output Signal Format	Digital
Power Dissipation (W)	<4	Power Supply Interface	Ethernet

* Frequency resolution is less than 5pm at short range.

* Laser output is less than 10mW for long distance measurement over 3m.

** Customization is avaiable when base distance is more than 15m.

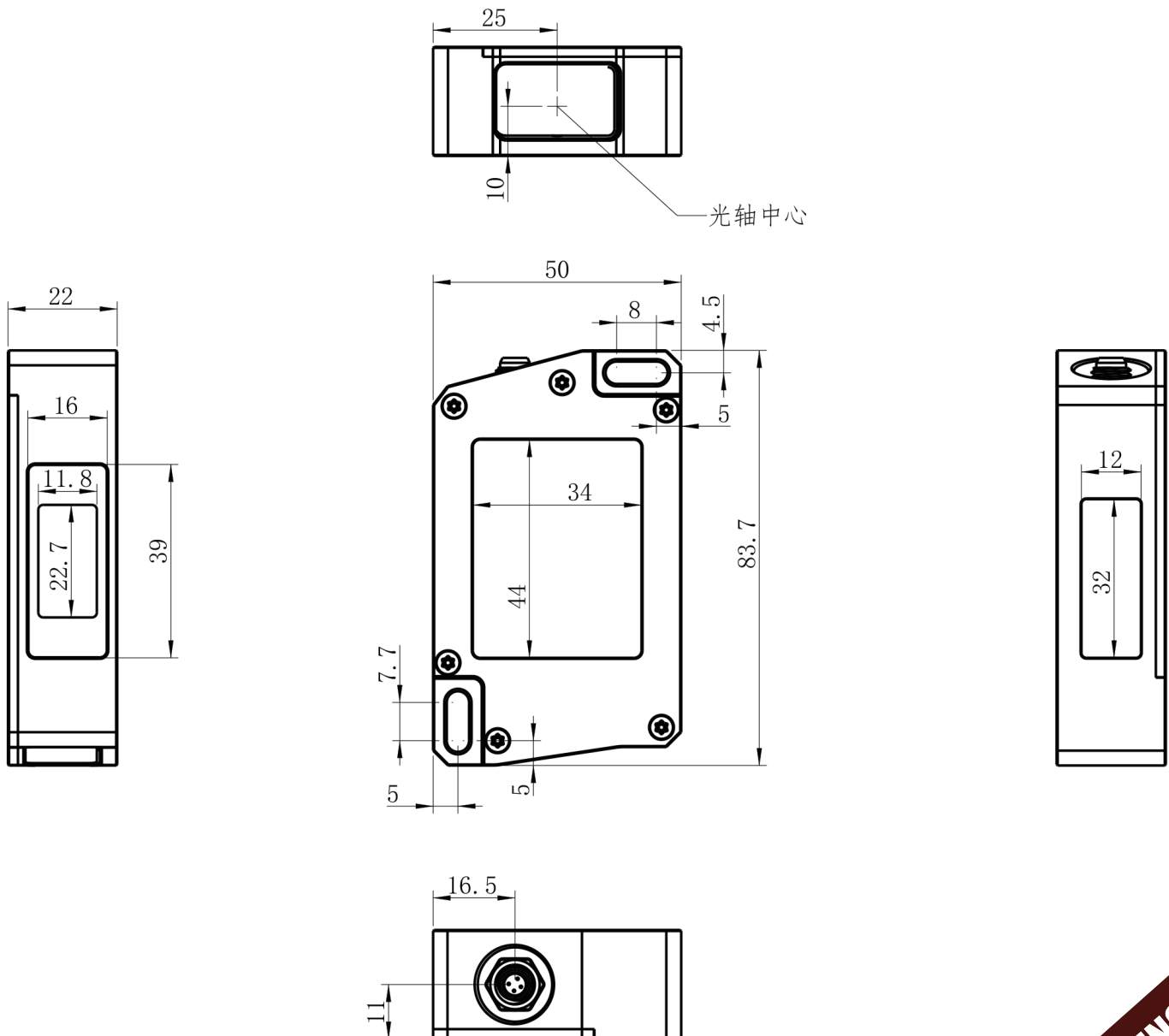
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LENS SPECIFICATIONS		
Lens Model	Base Distance	Measuring Range
F14	60-150mm	$\pm 5 \sim 10\%$ *
F8.9	60-150mm	$\pm 15\%$
F28	>300mm	$\pm 10 \sim 15\%$

* Measuring range differentiates on account of the base distance and measurand surface albedo.

PART NUMBER		
Cable Length	Cable Specification	Cable Model
1.5 m	Ethernet	7020~150
4 m	Ethernet	7020~400
15 m	Ethernet	7020~1500

3. DIMENSIONS



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