

MotionGO

The World's Smallest Laser Vibrometer



- ✓ Highly Integrated, based on Photonics Integrated Circuit (PIC)
- ✓ Smart Sensor, Built-in DSP for signal processing
- ✓ Ethernet Interface
- ✓ Supreme DC performance as a Displacement Sensor 5MSPS,
- ✓ Full Scale Velocity Range 20m/s
- ✓ Dual Laser (1310nm Measurement, 655nm Indicator)
- ✓ Sync-ed with Trig IN & OUT
- ✓ With both Digital and Analog Output
- ✓ Provide User SDK for Control Software Customization



1 Introduction

MotionGo is a miniature-size full-featured laser vibrometer with built-in data processing unit. MotionGo support both digital output and analog output at the same time. The data sampling rate is 5M sps, which can accurately test vibration signals from DC to 2.5MHz. MotionGo is equipped with a complete sets of lens system, which supports the target distance from 5cm to 40 meter. The focus of these lenses are all manually adjustable.

As an intelligent measurement unit, MotionGo supports large-scale networking interconnection. It is equipped with synchronous input and output port. MotionGo can also accept external trigger signals, supporting synchronous measurement together with other types of sensors. MotionGo also supports analog signal output, which can be easily connected with data acquisition cards, and enable the system upgrade of a traditional vibro testing system with non-contact measurement capability. MotionGo has excellent noise performance, supports testing up to 40 meters away,. Based on patent-ed algorithms and excellent quality control, MotionGo also has excellent DC performance and can be used as a accurate displacement sensor with meter scale displacement range.

To sum up, MotionGo can be widely used in many areas, such as aerospace material testing, structural mechanics testing, semiconductor micro-electromechanical testing, ultrasonic material testing, new energy processing, etc.

2 Applicationcases



Ultrasonic welding

By monitoring the amplitude change, ensure that the output is within a stable range.



Mobile phone motor

Eliminate the structural defects of components such as linear motor, camera or tactile sensor.



Aviation blades

Measure the frequency response characteristics of important aerospace components such as blades.



Machine tool spindle

During the machine tool processing, the spindle runout is an important factor of the accuracy. It is suitable for non-contact measurement under high-speed dynamic environment.



Loud speaker

Vibration test



Bearing

Eliminate the influence of additional load, and measure the bearing runout and other parameters.

3 Technical specifications

Parameter	Value (unit)	Parameter	Value (unit)
Measuring distance	0.025~40m	Measuring frequency range	DC~2.5MHz
Displacement noise density	Minimum 0.3pm/√Hz	Speed range	Maximum 20m/s
Displacement resolution	0.01nm	Displacement repetition accuracy (>10Hz)	0.1nm
Laser	1310nm Measurement, 655nm Indicator	Measuring laser output power	<5mW
Measuring laser safety level	CLASS I	Indicate laser output power	Adjustable
Hetero optical interference	>60000 lux	Degree of protection	IP64
Operating temperature range	0~50degree	Shell Material	Aluminium alloy
Supply voltage	DC12V	Power waste	<4W
Digital output signal interface	Ethernet 100BaseT	Analog output signal interface	SMA female
Trigger signal	Rising edge	Network synchronization signal	Square wave (1Hz)
Trigger and synchronization interface	Input and output	Synchronization accuracy	1us
Size	110x50x25 mm	Weight	300g

4 Model selections

Type	Camera lens	Depth of focus	Maximum vibration	Laser power	Remarks
MV-GW-TR-L	Optional	Large NA	4.5m/s	Normal power	Lens shall be separately selected
MV-HW-TR-L	Optional	Large NA	4.5m/s	High power	Lens shall be separately selected
MV-HW-TR-S	Optional	Large NA	4.5m/s	High power	Lens shall be separately selected
MV-HW-TR-M	Optional	Small NA	20m/s	High power	Lens shall be separately selected
MV-GW-TR-U	Special	Small NA	20m/s	Normal power	Special type of ultrasonic scalpel

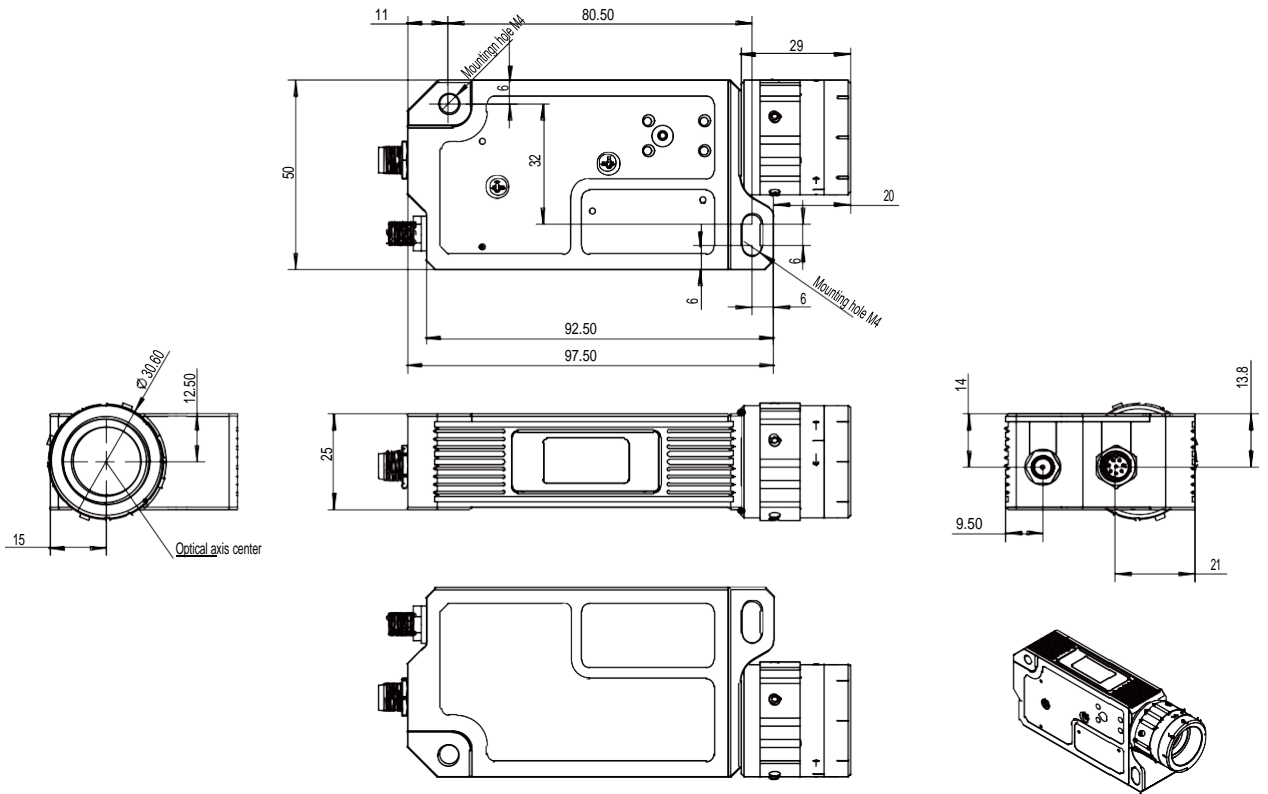
Lens

Type	Specification	Measuring distance	Depth of focus
TR-LENS-F28	Focusable F28 lens	30cm~40m	Can be collimated for use
TR-LENS-F15	Focusable F15 lens	15cm~30cm	Typical 2cm
TR-LENS-F2848	Focusable F28F48 lens	5~8cm	Typical 2mm
TR-LENS-DF28	Focusable double F28 lens	3~5cm	Typical 0.5mm

Parts

Number	Item	Specification
Cable-1m-A	Integrated cable	Integrated cable, 1m long, black
Cable-2m-A	Integrated cable	Integrated cable, 2m long, black
Cable-3m-S	3m cable	3m, straight head, black, with trigger cable
Adapter-12V	The power adapter	12V DC power adapter
Cable-SMA-SMAA	SMA male conversion line	SMA male-SMA male, 1m
Cable-SMA-SMAB	SMA male and female conversion line	SMA male-SMA female, 1m
Cable-SMA-BNCB	SMA-BNC conversion line	SMA male-BNC male, 1m
Plate-2	Connection block	
TRIPOD-2	Large floor tripod	
STAND-1	Portable vibration measuring table	
STAND-1	Vibration isolation measuring table	500*350mm ² breadboard base

5 Product dimensions



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