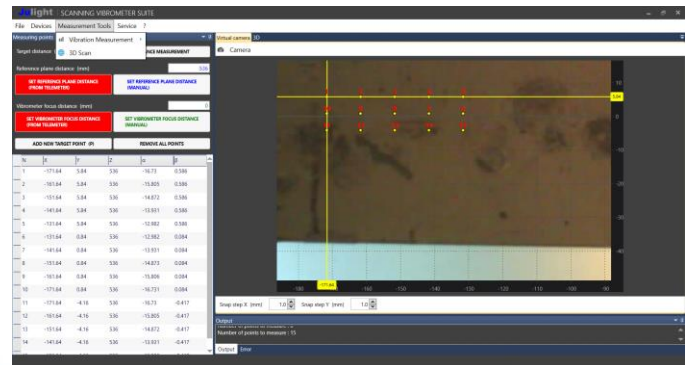




VSM-1000-(EXT)-SCAN SCANNING LASER VIBROMETER

- **SCANNING VIBROMETER FOR FULL-FIELD VIBRATION MEASUREMENT**
- **SELF-MIXING INTERFEROMETRIC CONFIGURATION**
- **FREQUENCY RANGE FROM DC TO 50 KHZ (OPTIONAL TO 3 MHZ)**
- **WORKING DISTANCE: 0.1-5.0M**
- **ETHERNET I/O FOR REMOTE CONTROL**
- **AUTOMATIC SPECKLE-TRACKING**
- **CLASS 2 LASER**
- **FAST AUTOFOCUS**
- **WORKS ON ALL DIFFUSIVE SURFACES**
- **PC SOFTWARE FOR FULL REMOTE CONTROL**



Julight VSM-1000-SCAN Laser Vibrometer uses a deflection scanning system for the laser beam, thus allowing to perform the full-field vibration analysis of a large object without contact. It has the smallest and most lightweight optical head on the market for scanning applications, and it operates on all rough and diffusive surfaces (e.g.: unfinished metal, plastic, rubber, wood, fabric, etc.). The analog electrical output is a replica of the target displacement or velocity, with a frequency range from DC to 50 kHz (or from DC to 3 MHz with "-EXT, extended frequency" option). Working distance is 0.1÷5.0m.

APPLICATIONS

- Full-field non-contact measurement of vibrations
- Automotive, aerospace, and mechanical industry
- Quality control
- Modal analysis

USE AND OPTIONS

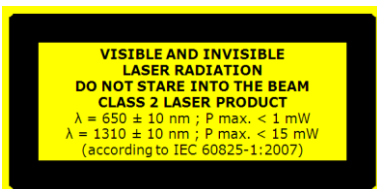
The scanning vibrometer is remotely controlled by a PC through a dedicated software that allows to set the deflection angle of the laser beam. An external data acquisition system is needed to store and analyse vibration time series. The following features are available:

- **HD Video Camera** – The object under test can be viewed on the PC through a camera integrated into the optical head. The user can select the measuring points directly on the picture of the object under test.
- **Geometry 3D Scan** – A 3D scanning laser telemeter is integrated in the optical head, to acquire the profile of the object under test. This also increases the autofocus speed.
- **Data Acquisition and Modal Analysis Software** – [available in 2019] The scanning vibrometer can be equipped with an integrated data acquisition system (DAQ) that is controlled by the vibrometer software, and can also include a modal analysis software suite.

Performance	0-50 kHz	20 kHz - 3 MHz
Maximum measurable vibration (peak-to-peak)	43 mm (theoretical) 10 mm (practical)	4 μ m
Maximum measurable velocity	0.5 m/s @ 0.5 m 0.2 m/s @ 5.0 m	40 m/s
Output signals	<ul style="list-style-type: none"> Displacement / Velocity (analog) Scan Sync (digital) Monitor (3.5mm jack): - Optical Signal Level (analog) - Speckle-Tracking active (digital) 	
Output signal responsivity	<ul style="list-style-type: none"> Displ.: 0.5 V/mm Vel.: 5 V/(m/s) 	5 V/ μ m
Resolution	Noise-limited	
Noise Equivalent Displacement	0.04 nm/ \sqrt Hz @ 0.5 m 0.4 nm/ \sqrt Hz @ 5.0 m	
Output signal accuracy	1 % (@0.5m)	<5 %
Spatial transversal resolution	100 μ m @ 0.5 m 500 μ m @ 5.0 m	
Target surface	Diffusive or retro-reflective.	
Working distance	from 0.1 m to 2.0 m (standard version) from 0.2 m to 5.0 m (-L version)	
Autofocus	Fast, assisted by laser telemeter	
Telemeter resolution	\pm 0.5 mm	
Scan angle	50° \times 50°	
Maximum scan rate ⁽¹⁾	up to 5 pts/s (with Windows SW control) up to 400 pts/s (with direct Galvanometer programming)	
Angular resolution	0.002°	
Angular stability	<0.001°/h	

⁽¹⁾ The effective scan rate may depend on the host PC (processor, RAM, tasks running in parallel), on the target surface finish, and on whether the speckle-tracking system is used or not.

Physical and Interface	
Laser radiation	<ul style="list-style-type: none"> pointer / telemeter: Pout < 1 mW @ 650 nm (visible) vibrometer: Pout < 15 mW @ 1310 nm (invisible)
Customers that need a vibrometer with measuring wavelength of 633 nm should select the product VSM-1000-UW2	
Laser safety class	<ul style="list-style-type: none"> Class 2 @ 650 nm (visible) Class 1M @ 1310 nm (invisible)
Camera	HD 5MP (2592 x 1944 pixels), autofocus, variable exposure
Optical head dimensions	95 mm \times 130 mm \times 320 mm
Electronic unit dimensions	24.6 cm \times 15.5 cm \times 32.0 cm
Optical head cable length	3 m
I/O	Ethernet
Host PC	<ul style="list-style-type: none"> Processor: Intel Core i7 RAM: 8 GB OS: Windows 7 or later
Software functionality	Distance setting; Autofocus; Laser control; Camera pan and zoom; Measuring point selection (mouse-click, automatic array, import from .csv); 3D profile measurement (3D view, data export); Vibration measurement set-up.
Power supply	<ul style="list-style-type: none"> 110-120 VAC / 60 Hz 220-240 VAC / 50 Hz
Power consumption	< 40 W
Weight	<ul style="list-style-type: none"> main unit: 6 kg optical head: 3 kg
Temperature (operating)	Optical head: +10 °C to +60 °C Main unit: +10 °C to +50 °C



MEASURABLE VIBRATIONS

