

Dual Fiber SWIR Laser Doppler Vibrometer



The OptoMET Dual Fiber SWIR Vibrometer consists of a SWIR vibrometer and a flexible Dual-Fiber head, different objective lenses either collimated or focused are available.

With its build-in stabilized SWIR laser the vibrometer gets a very good signal-to-noise ratio on all technical and organic surfaces. Thanks to our innovative digital signal processing technology the vibrometer achieves highest accuracy in combination with an outstanding resolution up to fm for displacement.

With an additional fiber switch multiple fiber heads can be connected to the vibrometer, so you can multiplex many different channels (2, 4, 8, 16, ...), the fiber switch comes with an electrical interface (Ethernet, USB, TTL, ...) and can be remotely operated by a PC.

Features:

- Excellent signal level thanks to its build-in stabilized SWIR Laser
- Small and flexible fiber heads
- Ability to multiplex many fiber heads using a fiber switch
- Passive and robust fiber head design (no active electronic)
- Max. velocity: 24.5 m/s
- Auto- and manual Focused fiber heads working distance up to 100 m
- Collimated fiber heads available

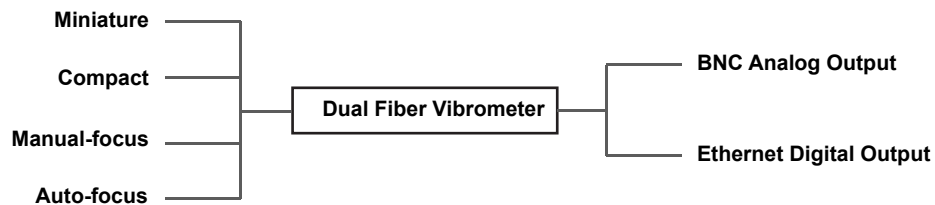
Ideal for:

- Difficult measurement conditions: dark / rough surfaces
- Where physical access is difficult
- Quality inspection from different points of view
- Measurements in vacuum- or climatic chambers
- High speed vibration measurements
- Applications which require small spot sizes or long working distances
- Large amplitudes at small working distances



Set up Dual Fiber Vibrometer

Fiber Head — Vibrometer — Output



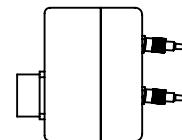
■ Miniature Fiber Head with camera:

- Fix Working Distance: OBJ-DF-F
- Dimension (D x L): 11 x 52 mm
Fix working distances: 4, 9, and 16 mm
Inspection camera: resolution 640 x 480 pixel



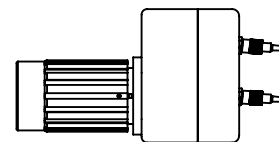
■ Compact Fiber Head:

- Collimated lens: OBJ-DF-C
- Fix Working Distance: OBJ-DF-F
Dimension: 89 L x 43.9 B x 95 H mm
Weight: 0.5 kg



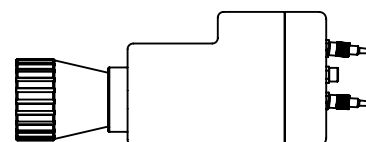
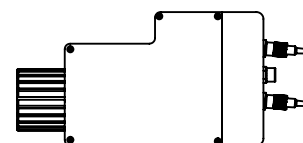
■ Manual fokus Fiber Head:

- Short-Range: OBJ-DF-SR
- Mid-Range: OBJ-DF-MR
Manual focused lens with variable working distance
Dimension: 157 L x 43.9 B x 95 H mm
Weight: 1.2 kg



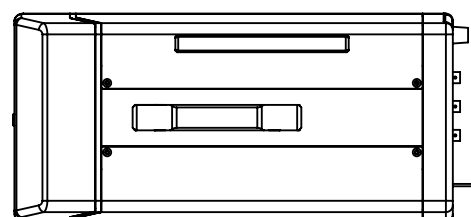
■ Autofocus Fiber Head:

- Mid-Range: OBJ-DF-AF-MR
Auto-focused lens with variable working distance:
Dimension: 175.5 L x 43.9 B x 95 H mm
Weight: 0.8 kg
- LR-Range: OBJ-DF-AF-LR
Auto-focused lens with variable working distance:
Dimension: 221 L x 43.9 B x 95 H mm
Weight: 0.9 kg

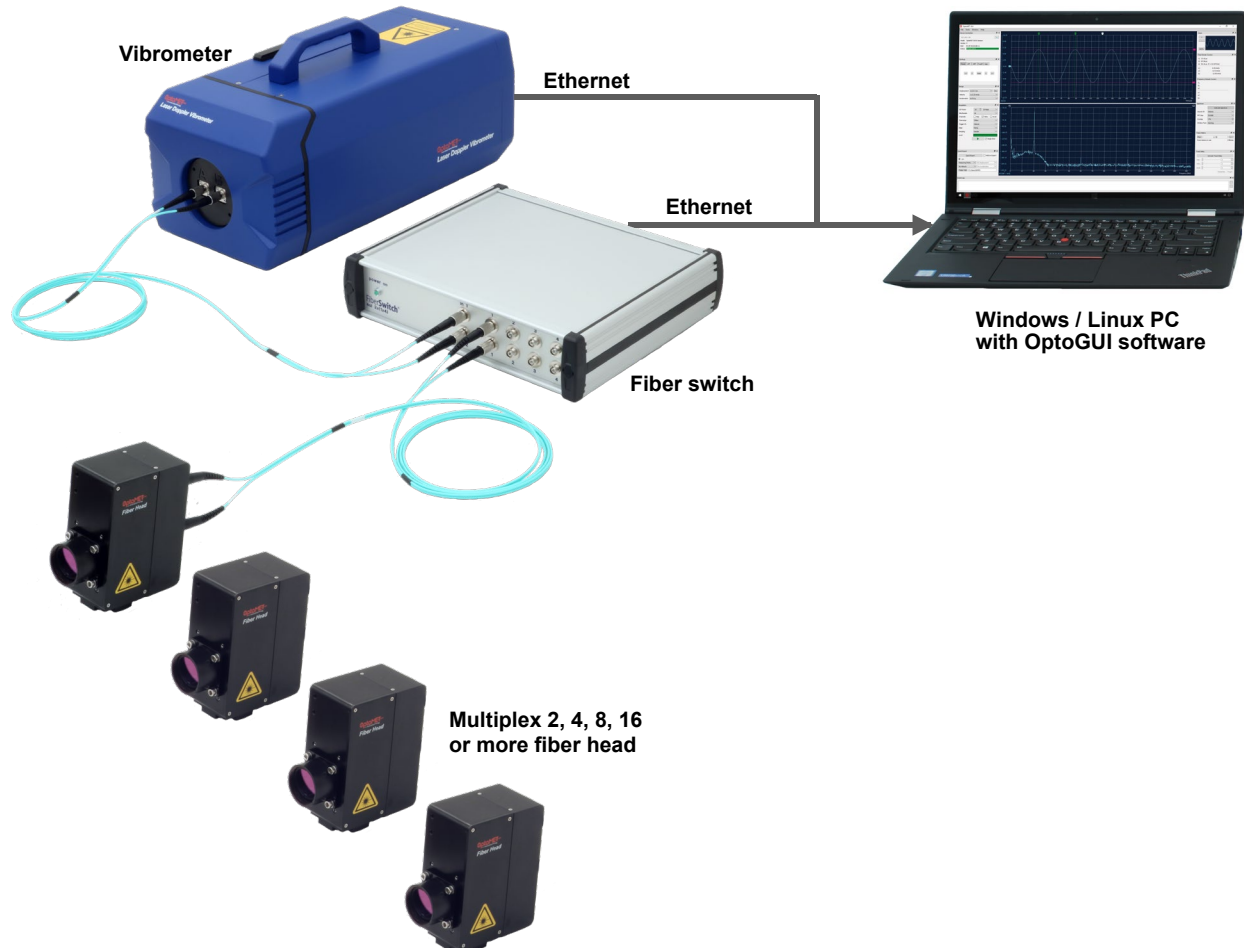


■ SWIR Vibrometer

- Dimension: 370 L x 120 B x 100 H mm
- Weight: 8 kg
- SWIR laser, eye safe, laser class 1
- Bandwidth: 0 Hz - 10 MHz
- Max. velocity: 24.5 m/s



Multiplex many fiber heads using a fiber switch



Fiber switch technical data:

Switching times	2 ms
Guaranteed lifetime	> 100 Mio cycles
Switching frequency	< 50 Hz
Number of channels	2, 4, 8 or 16; other channel counts on request
Electrical interface	Ethernet, USB, RS232, TTL, I2C
Operating temperature	0 ... 60°C
Operating voltage	integrated power supply 110 -250V

Remote control:

Autofocusing of fiber heads	via Ethernet / OptoGUI software
Auto- or manual switching	via Ethernet / OptoGUI software

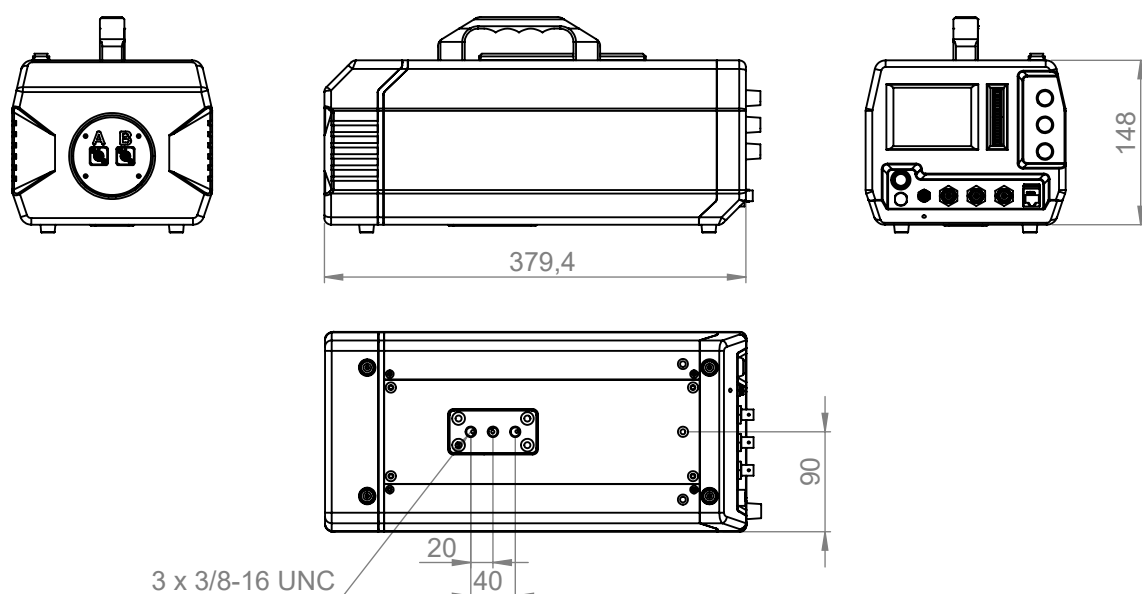
Measurement data:

Type	Time domain, Frequency domain, Transfer function
Export format	UFF-, csv

Vibrometer general data

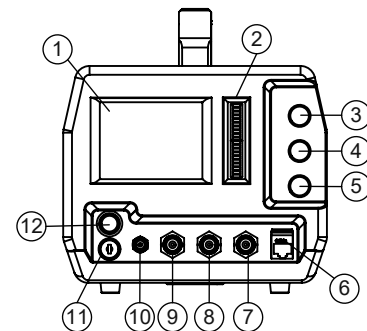
Measured quantity	Velocity, displacement, acceleration
Signal processing	Digital (OptoMET UltraDSP Technology)
Maximum velocity	24.5 m/s
Number of measurement ranges	Up to 14 for velocity / 19 for displacement
Vibration resolution	Down to 1.7 nm/s / 50 fm
Frequency bandwidth	0 Hz - 10 MHz
Source impedance	50 Ohm
Laser wavelength	Measurement laser: 1550 nm, Targeting laser: 510-530 nm
Laser safety class	Measurement laser: output power <10 mW, eye-safe, class 1 Targeting laser: output power <1 mW, eye-safe, class 2
User interface output	Color screen 3.5" + 20 segment LED bargraph
User interface input	Touch screen, knobs with push-button, key switch (power)
Operating temperature range	+5 ... +40°C
Dimensions	Length x width x height (excluding handle): 380 x 180 x 148 mm
Weight	8 kg + fiber head
Power supply	110 -240 V AC (50-60Hz) or 12 V DC
Decoder selection	D-VD-1N / D-VD-2N / D-VD-2N-R / D-VD-3N / D-VD-4N/ D-VD-5N D-DD-1N / D-DD-2N/ D-DD-2N-R / D-DD-3N / D-DD-4N / D-DD-5N D-AD-1N / D-AD-2N/ D-AD-2N-R / D-AD-3N / D-AD-4N / D-AD-5N
Analog output	- Up to 3 BNC analog outputs - Data rate: 160 MSamples/s @ 16-bit - Output voltage range: ± 2 V
Ethernet digital output	- Data rate: 1 GBit (53.3 MSamples/s @ 16-bit) - With a data acquisition and analysis software - Remote control feature

Dimension of the Vibrometer:



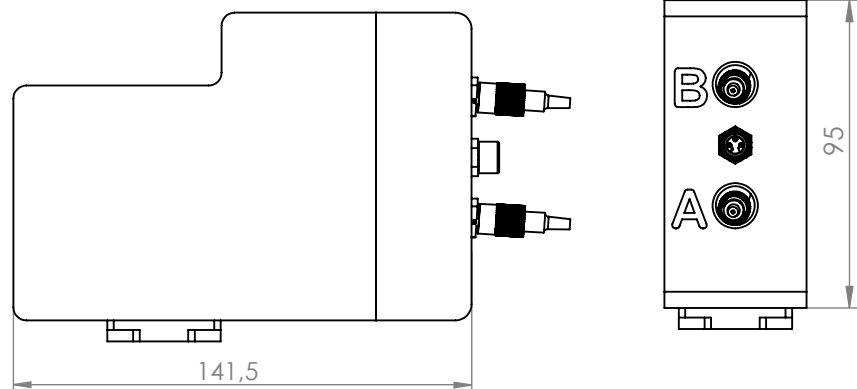
Indicators / operating:

1	Touch screen LCD 3.5-Inch
2	Signal Level
3	Displacement measuring ranges
4	Velocity measuring ranges
5	Acceleration measuring ranges
6	Ethernet
7	Output acceleration
8	Output velocity
9	Output displacement
10	Power
11	Lock
12	Laser

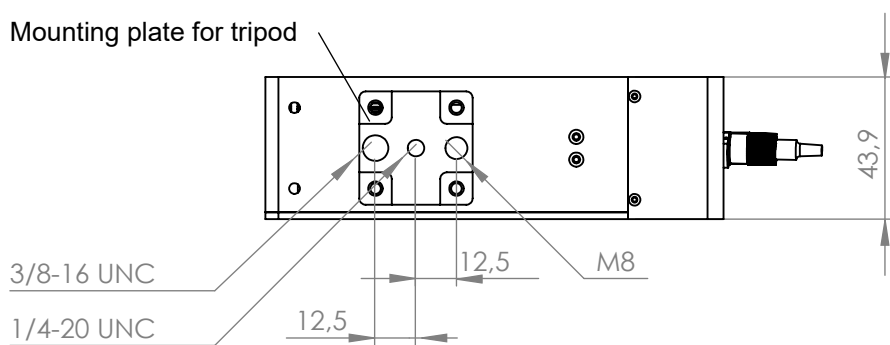


Fiber Head general data

Dimension of the autofocus Fiber Head without objective lens:



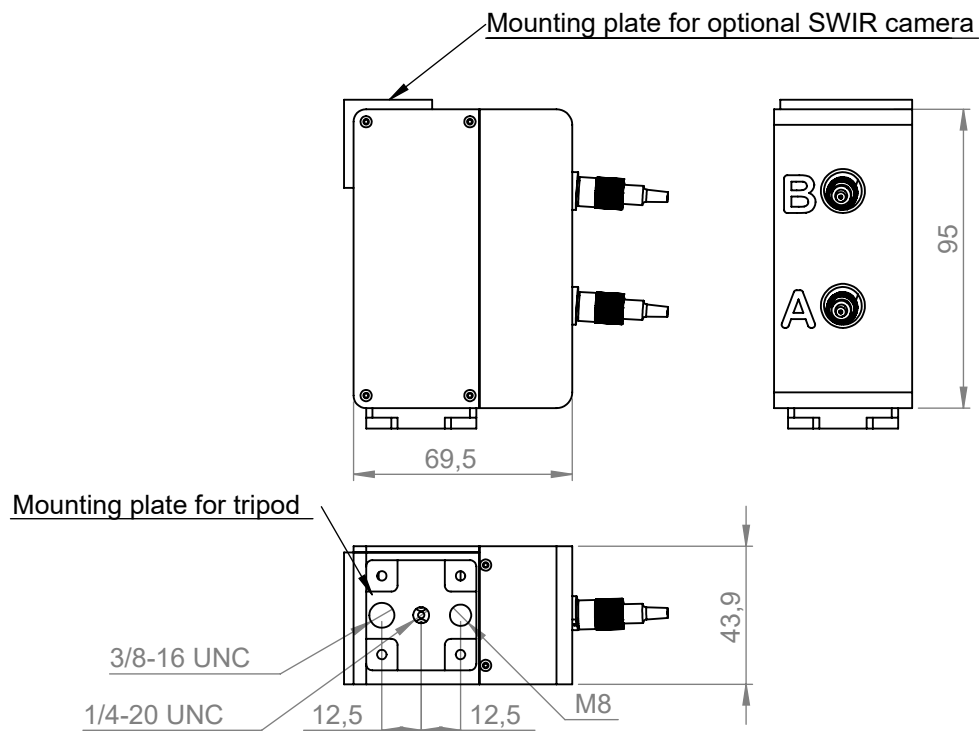
Mounting plate for tripod



Autofocus lenses technical data

Specification	OBJ-DF-AF-MR Mid-Range autofocus 150 mm ... 10 m	OBJ-DF-AF-LR Long-Range autofocus 500 mm ... 100 m
Focal length (mm)	50	100
Min. stand-off distance (mm)	150	500
Spot size in μm at:		
150 mm	60	
500 mm		130

Dimension of the manuel Fiber Head without objective lens :



Manual- and Fix lenses technical data

Specification	OBJ-DF-C collimated	OBJ-DF-F fixed working distance	OBJ-DF-SR Short Range manuel focus 45 mm ... 5 m	OBJ-DF-MR Mid Range manuel focus 150 mm ... 10 m
Focal length (mm)	-	40 / 50 / 75 / 100 / 150 / 200	25	50
Min. stand-off distance (mm)	0	27 / 37 / 64 / 89 / 139/ 189	45	150
Spot size in μm at:	1400			
27 mm		17		
37 mm		22		
45 mm			50	
64 mm		33		
89 mm		44		
139 mm		66		
150 mm				60
189 mm		88		

Laser product label

DO NOT STARE INTO BEAM Class 2 Laser Product
 Laser CLASS 1: invisible, 1550 nm, output power: <10 mW
 Laser CLASS 2: visible, green laser beam, 510-530 nm, output power: <1 mW

