

## 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 4 nm/s for velocity and 4 pm 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
- Focused fiber heads with fixed or variable working distance: 27 mm to 10 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

### ■ Compact Dual Fiber Head:



- Dimension: 89 L x 43.9 B x 95 H mm
- Weight: 0.5 kg
- Collimated lens: OBJ-DF-C
- Focused lens with fixed working distance: OBJ-DF-F

### ■ Standard Dual Fiber Head:

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



### ■ SWIR Vibrometer

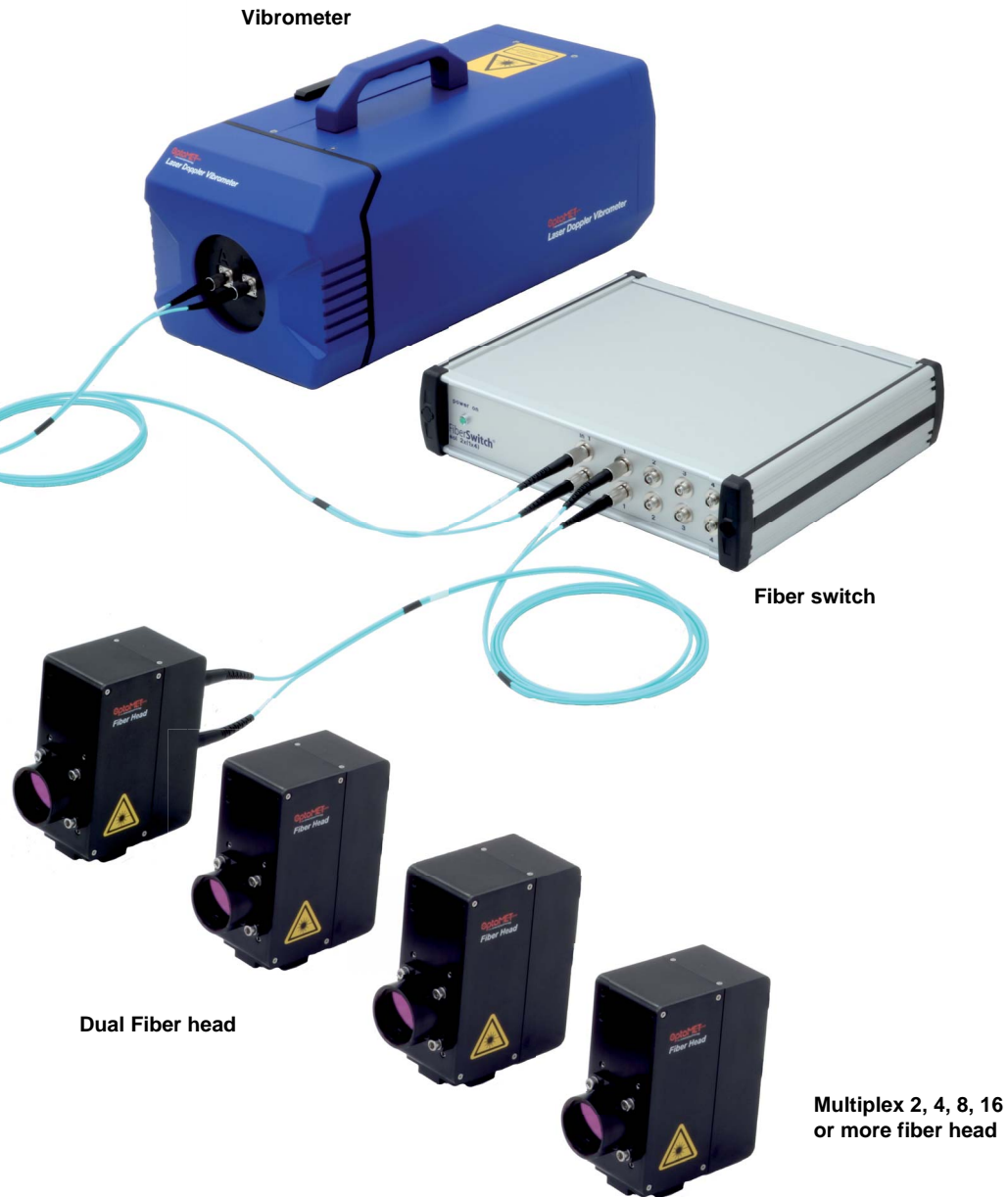


- Dimension: 370 L x 120 B x 100 H mm
- Weight: 8 kg
- SWIR laser, eye safe, laser class I
- Bandwidth: 0 Hz - 10 MHz
- Max. velocity: 24.5 m/s
- Resolution: 4 pm

### Dual fiber lenses technical data

Specification	OBJ-DF-C collimated	OBJ-DF-F fixed working distance	OBJ-DF-SR Short Range variable working distance 45 mm ... 5 m	OBJ-DF-MR Mid Range variable working distance 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 $\mu\text{m}$ 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		

**Multiplex many fiber heads using a fiber switch**



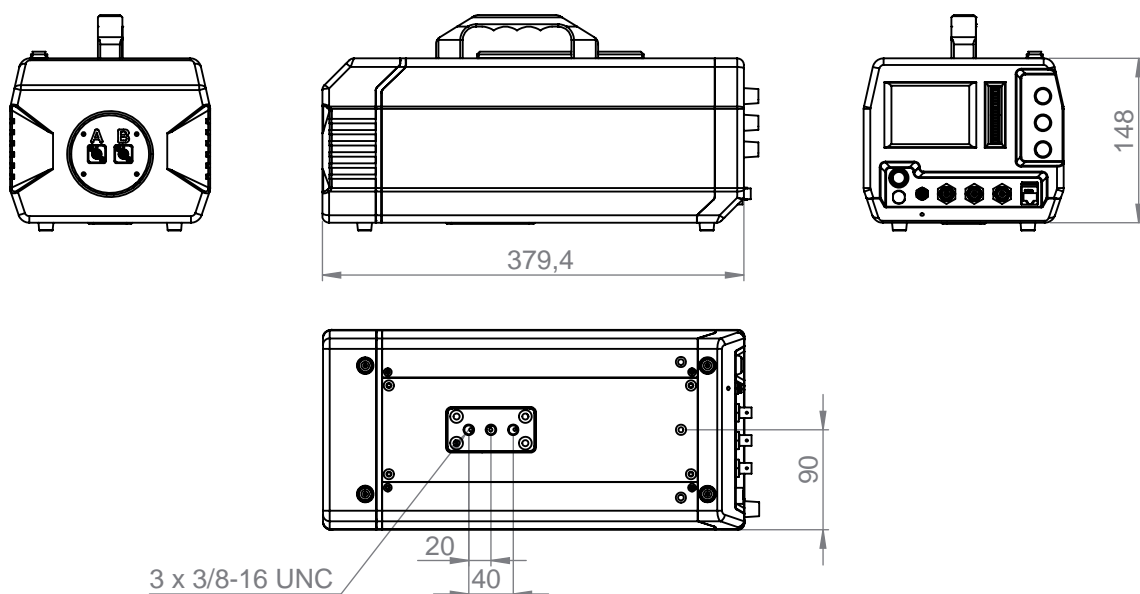
**Fiber switch technical data**

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	RS232, TTL, I2C, Ethernet, USB
Operating temperature	0 ... 60°C
Operating voltage	integrated power supply 110 -250V

## Vibrometer general data

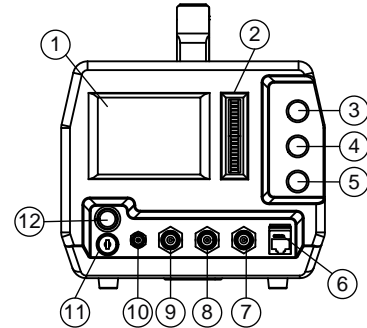
Measured quantity	Velocity, displacement, acceleration
Signal processing	Digital (OptoMET UltraDSP Technology)
Maximum velocity	Up to 24.5 m/s
Number of measurement ranges	Up to 14 for velocity / 19 for displacement
Vibration resolution	Up to 4 nm/s / 4 pm
Frequency bandwidth	0 Hz - 10 MHz
Source impedance	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 I Targeting laser: output power <1 mW, eye-safe, class II
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-3N / D-VD-4N/ D-VD-5N D-DD-1N / D-DD-2N/ D-DD-3N / D-DD-4N / D-DD-5N D-AD-1N / D-AD-2N/ 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: $\pm 2$ V
Ethernet digital output	- Data rate: 1 GBit (53.3 MSamples/s @ 16-bit) - With a data acquisition software - Remote control feature

### Dimension of the Vibrometer:



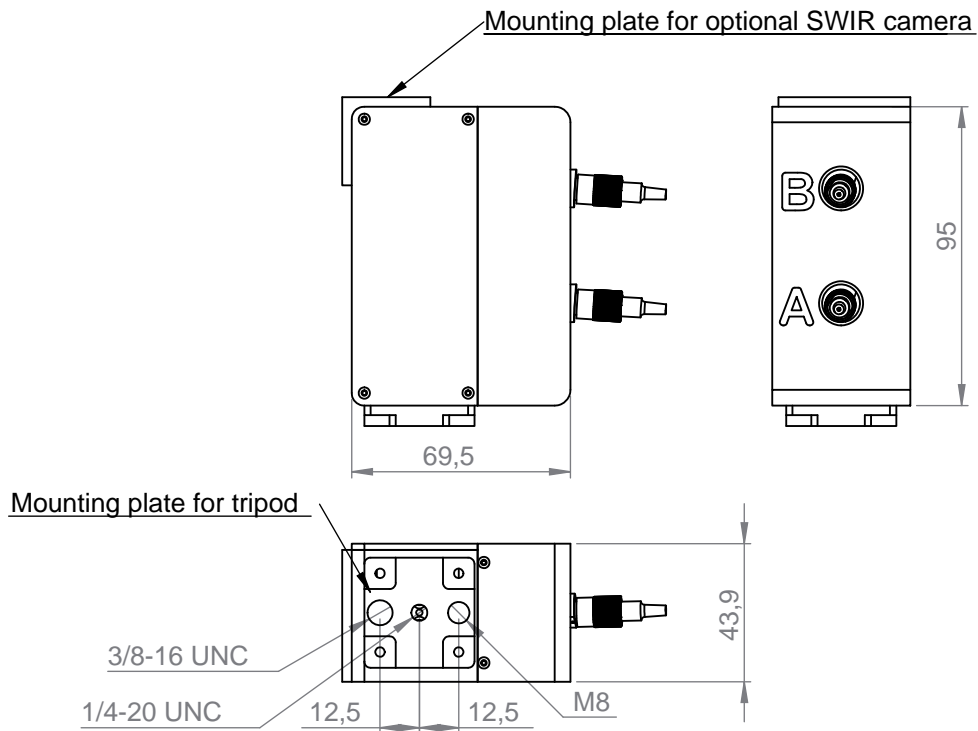
**Indicators / operating:**

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 Fiber Head without objective lens :



**Class II 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

