



## VibroFlex Xtra

The Polytec VibroFlex laser Doppler vibrometer is a modular high-performance solution for non-contact vibration measurement. It offers unrivalled measurement performance and versatility for solving pressing vibration issues in both R&D and industrial quality control.

The VibroFlex family comprises the front-end VibroFlex Connect and a selection of non-contact laser sensor heads. Integrated with the VibSoft data acquisition and analysis software, the vibration measurement system is ready to go. Study acoustics, dynamics and vibrations on nano to macro structures without contact and with laser precision.

Measuring vibrations with the VibroFlex Xtra sensor head assures high-fidelity data from all surfaces – even on dark, biological, rotating or moving objects. This eye-safe laser technology is perfect for challenging applications like NDT, biomedical, longer distance measurements, quasi-static displacement measurement and shaker feedback control.

VibroFlex – the new flexibility of laser vibration measurement.



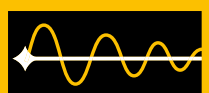
### Highlights

- High-fidelity data from all surfaces – even on dark, biological or moving objects
- From  $\mu\text{m}$ -sized to large, distant objects
- High dynamic range up to 30 m/s
- Fast remote and auto focus for best signal quality
- Optional fiber lens for hard to access areas
- Best optical sensitivity and depth of field with a selection of interchangeable lenses

## VibroFlex Xtra

Xtra sensitivity and versatility

Preliminary datasheet



# Technical data



## General specifications

|                          |                                      |
|--------------------------|--------------------------------------|
| <b>Model</b>             | <b>VibroFlex Xtra VFX-I-120</b>      |
| Weight                   | 4.55 kg                              |
| Protection class         | IP40                                 |
| Dimensions [W x H x L]   | 135 x 100 x 383 mm                   |
| Operating temperature    | +5 °C ... +40 °C (41 °F ... 104 °F)  |
| Storage temperature      | -10 °C ... +65 °C (14 °F ... 149 °F) |
| Relative humidity        | max. 80%, non-condensing             |
| Controller compatibility | VibroFlex Connect                    |
| Maximum velocity         | ± 30 m/s                             |

## Optical specifications

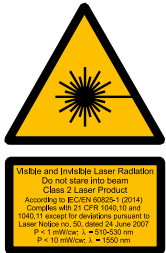
|   |  |
|---|--|
| Laser type                              | Measurement laser: invisible (IR), wavelength 1550 nm, output power <10 mW<br>Targeting laser: visible (green), wavelength 510 - 530 nm, effective output power < 1 mW |
| Laser class                             | Class 2, eye-safe, with both lasers in operation   |
| Focus                                   | Auto focus, remote focus, manual focus   |
| Maximum stand-off distance <sup>1</sup> | Up to 100 m (with VFX-O-LRI long range front lens, surface dependent)  |

## Working distance and laser spot size

|   | Front lenses          |                      | Fiber heads for VFX-O-FMI-02           |  |
|---|-----------------------|----------------------|--|--|
|   | VFX-O-SRI short range | VFX-O-LRI long range | VFX-O-100 <sup>2</sup> Mini Fiber Head | VFX-O-110 <sup>3</sup> Micro Spot Fiber Head |
| Min. stand-off distance [mm] <sup>1</sup>   | 25                    | 380                  | 60                                     | 56±2   |
| Exit beam diameter (1/e <sup>2</sup> ) [mm] | 2...4.5               | 11...12.4            | 3.3...4.3                              | 14   |
| Typical spot size in µm at                  |                       |                      |  |  |
| 25 mm                                       | 48                    | –                    | –                                      | –  |
| 50 mm                                       | 77                    | –                    | –                                      | –  |
| 56 mm                                       | 81                    | –                    | –                                      | 8  |
| 60 mm                                       | 84                    | –                    | 28                                     | –  |
| 75 mm                                       | 91                    | –                    | 37                                     | –  |
| 100 mm                                      | 97                    | –                    | 53                                     | –  |
| 300 mm                                      | 150                   | –                    | 180                                    | –  |
| 380 mm                                      | 184                   | 60                   | 224                                    | –  |
| 500 mm                                      | 236                   | 81                   | 295                                    | –  |
| 1,000 mm                                    | 448                   | 171                  | 608                                    | –  |
| 2,000 mm                                    | 906                   | 349                  | 1,300                                  | –  |
| 5,000 mm distance                           | 2,766                 | 898                  | –                                      | –  |
| Each additional meter add [µm]              | –                     | +183                 | –                                      | –  |

## Compliance with standards

|                   |                |   |
|-------------------|----------------|---|
| Laser safety      | IEC/EN 60825-1 |   |
| Electrical safety | IEC/EN 61010-1 |   |
| EMC               | Emission:      | Limit class B<br>IEC/EN 61000-3-2 and 61000-3-3     |
|                   | Immunity:      | IEC/EN 61000-4-2 to 61000-4-6 and IEC/EN 61000-4-11 |



<sup>1</sup> Measured from the front edge of the front lens.

<sup>2</sup> Included with VFX-O-FMI-02 Fiber Lens (IR).

<sup>3</sup> Optional available for VFX-O-FMI-02 Fiber Lens (IR).

# Options and accessories



## Optical accessories

VFX-O-SRI SR Front Lens (IR)

Short Range front lens for measuring at short working distances (highest depth of focus).

VFX-O-LRI LR Front Lens (IR)

Long Range front lens for measuring at long working distances.



VFX-O-FMI-02 Fiber Lens (IR) 2 m

Flexible measurements with 2 m fiber cable on small objects or where space is restricted. Includes VFX-O-100 Mini Fiber Head and VIB-A-CAS08 Transportation Case



VFX-O-100 Mini Fiber Head

Small fiber head (10 mm diameter) with a laser spot size down to 28  $\mu\text{m}$  for VFX-O-FMI-02 Fiber Lens (IR) 2 m



VFX-O-110 Micro Spot Fiber Head

Small fiber head (24 mm diameter) with a laser spot size of 8  $\mu\text{m}$  for VFX-O-FMI-02 Fiber Lens (IR) 2 m



## Tripods

VIB-A-T02 Standard Tripod

Easy targeting on the object under test.

VIB-A-T05 Tripod with Geared Pan/Tilt Head

For precise pointing of the sensor head. The geared pan/tilt head allows quick coarse adjustment and fine adjustment in 3 axes



## Positioning stages

VIB-A-P35 Precision 4-Axes Stage

XY-traverse stage featuring 18 mm travel with  $\pm 5^\circ$  pan/tilt function for positioning a single 10 mm outer diameter Mini Fiber Head.



VIB-A-P36 Pan/Tilt Precision Stage

For positioning a single 10 mm outer diameter Mini Fiber Head. Travel range  $\pm 5^\circ$ .





VIB-A-P01 Tripod  
Mountable Tilt Stage

The tilt travel is  $\pm 9^\circ$ . Quick release plates to interface with VIB-A-T02 and VIB-A-T05 tripods are included.



VIB-A-P02 Tripod  
Mountable Traverse/Tilt Stage

The travel of the traverse stage is 105 mm and the tilt travel is  $\pm 9^\circ$ . Quick release plates to interface with VIB-A-T02 and VIB-A-T05 tripods are included.



VIB-A-P06 Tripod  
Mountable X/Y/Tilt

The travel of the x & y traverse is 100 mm along and across laser beam and the tilt stage is  $\pm 9^\circ$ . Quick release plates to interface with VIB-A-T02 and VIB-A-T05 tripods are included.



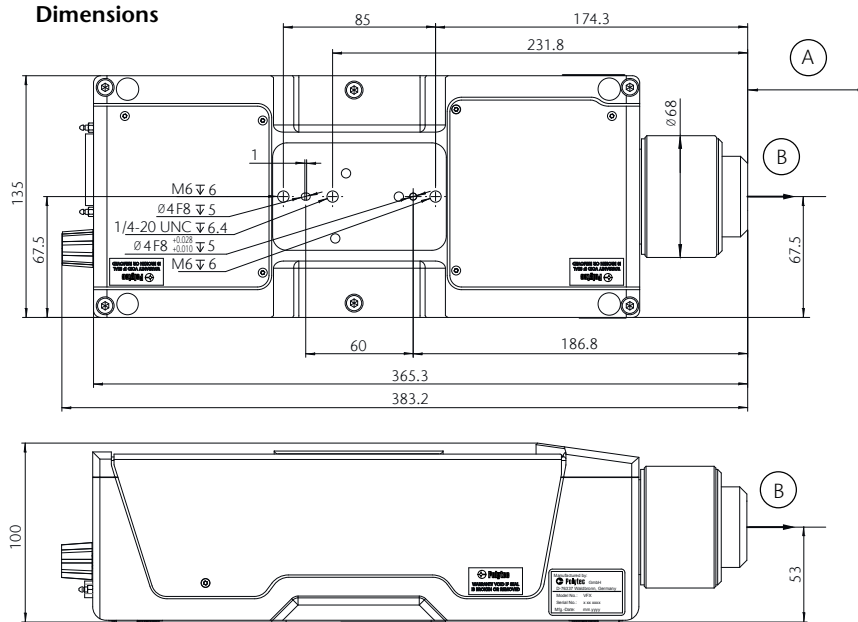
### Transportation cases

VIB-A-CAS07 Transportation Case  
for VibroFlex Xtra (VFX-I-120)

Robust transportation case for the sensor head  
(included with sensor head)



### Dimensions



All dimensions in mm  
if not marked otherwise

(A) Stand-off distance

(B) Beam

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