



## Digital Velocity Decoder D-VD-2

### Ultrafast FPGA-based Digital Signal Processing

Optomet Vibrometers feature an end-to-end FPGA-based digital signal processing allowing a fully digital read-out of the measurement data. Digital signal processing avoids any drawbacks of analog demodulation which may result from component aging, temperature dependencies, noise and non-linearities. Significantly higher sensitivity, better resolution, and stability are the benefits of OptoMET's end-to-end digital signal processing. Extremely low noise levels produce precise results even from poorly reflecting measurement objects.



#### HIGHLIGHTS:

- Digital decoder
- 11 velocity measuring ranges
- Frequency range: 0 Hz - 1 MHz
- Max. velocity up to 2 m/s
- Resolution down to  $1.3 \text{ nm s}^{-1}/\sqrt{\text{Hz}}$

### High-Precision Sense Velocity Decoder

All vibrometers series feature by default a velocity decoder and can be supplemented with a suitable displacement and/or acceleration decoder.

The D-VD-2 velocity decoder has been specially developed to register even the smallest mechanical vibrations and motions. It has 11 velocity measuring ranges from 1 mm/s to 2 m/s and is not only ultrasensitive in detecting tiny vibrations up to 1.3 nm/s, but is also ideal for standard vibration measurements in the acoustic and ultrasonic ranges (up to 1 MHz).

# Technical data

Pos.	Full Scale Output (Peak) m/s	Typical Resolution* $\mu\text{m s}^{-1} / \sqrt{\text{Hz}}$	Signal Frequency Range kHz	Max. Acceleration g
1	0.001	0.0013	2,5	1.6
2	0.002	0.0026	5	6.4
3	0.005	0.004	10	32
4	0.01	0.006	25	160
5	0.02	0.008	50	640
6	0.05	0.015	100	3,200
7	0.1	0.035	250	16,000
8	0.2	0.08	500	64,000
9	0.5	0.20	1000	320,000
10	1	0.26	1000	640,000
11	2	0.35	1000	1,280,000

\* The resolution is defined as the signal amplitude (rms) that produces 0 dB signal/noise ratio with 1 Hz spectral resolution at 50 %  $f_{\text{max}}$ .

