



Digital Velocity Decoder D-VD-4

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
- 9 velocity measuring ranges
- Frequency range: 0 Hz - 10 MHz
- Max. velocity up to 5 m/s
- Resolution down to $6 \text{ nm s}^{-1}/\sqrt{\text{Hz}}$

High Frequency 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-4 HF velocity decoder is the optimum solution for high-frequency processes up to 10 MHz. This fast digital decoder can measure vibration velocities between 6 nm/s and 5 m/s. It combines a large range of measuring frequencies with an excellent resolution. With its maximum permissible acceleration of 32,000,000 g, it is predestined for applications in microsystems engineering.

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	0.01	0.006	25	160
2	0.02	0.008	50	640
3	0.05	0.015	100	3,200
4	0.1	0.035	250	16,000
5	0.2	0.08	500	64,000
6	0.5	0.20	1000	320,000
7	1	0.26	1500	960,000
8	2	0.35	2500	3,200,000
9	5	0.37	10000	32,000,000

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

