



## Digital Velocity Decoder

D-VD-0-S

### 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
- 8 velocity measuring ranges
- Frequency range: 0 Hz - 25 kHz
- Max. velocity up to 2 m/s
- Resolution down to  $6 \text{ nm s}^{-1}/\sqrt{\text{Hz}}$
- Max. linearity error: 0.5 %

#### Start 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-0-S velocity decoder is the versatile solution for various types of non-contact vibration metrology tasks. With its 8 velocity measuring ranges, it can measure up to 25 kHz and thus well above the audible acoustic range. Digital signal processing provides excellent linearity and measuring accuracy.

## 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	25	320
3	0.05	0.015	25	800
4	0.1	0.035	25	1,600
5	0.2	0.08	25	3,200
6	0.5	0.20	25	8,000
7	1	0.26	25	16,000
8	2	0.35	25	32,000

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

