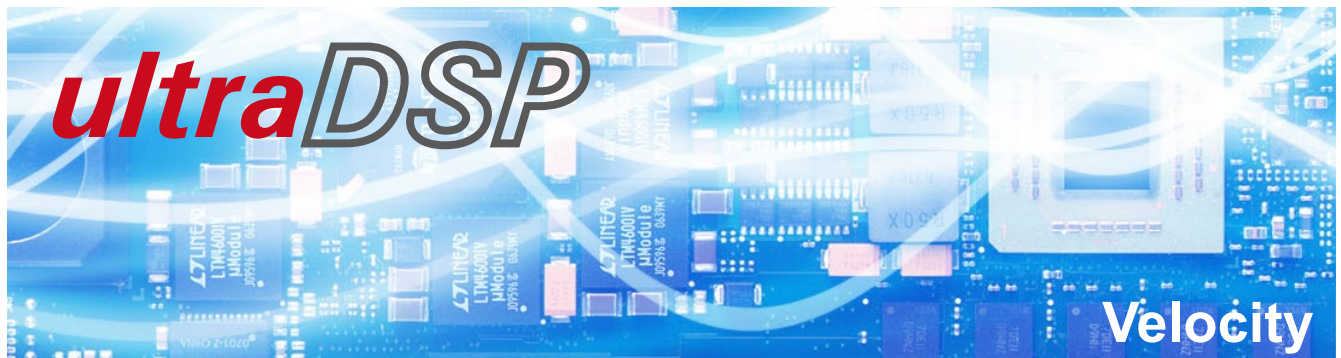


Digital Velocity Decoder D-VD-3



ultraDSP Technology - Ultrafast digital signal processing (ultraDSP)

OptoMET offer a complete line of vibrometer digital decoders. Compared to their analog counterparts, digital decoders offer much better precision, resolution, aging resistance, and sensitivity. The user can thus measure vibrations / dynamic motion (even very small amplitudes) with high precision. Practical applications also benefit from the excellent low-noise digital signal processing that allows measurements on nearly all types of surfaces and from a large distance.

OptoMET has implemented its ultrafast digital signal processing technology (ultraDSP), which combines efficient algorithms with extremely powerful hardware, to achieve exceptional velocity resolution, high frequency bandwidths and extremely large dynamic range of up to 9 decades for velocity measurements (nm/s - m/s).

Velocity decoders

OptoMET offers a wide range of digital decoder options allowing customers to tailor any vibrometer model to their unique measurement requirements.

All vibrometers have at least one velocity decoder, which can be supplemented with a suitable displacement and/or acceleration decoder.

The choice of velocity decoder defines not only the minimum and maximum measurable velocity, but also the maximum permissible acceleration and vibration frequency.

D-VD-3 Features:

- Digital Decoder
- 11 velocity measuring ranges
- Frequency range DC to 2.5 MHz
- Max. vibration velocity 10 m/s
- Resolution down to $6 \text{ nm s}^{-1}/\sqrt{\text{Hz}}$
- Max. permissible acceleration of the measured object 16,000,000 g

Technical data

The D-VD-3 high-speed velocity decoder with 11 measuring ranges can measure from 6 nm/s to 10 m/s. The maximum permissible acceleration is 16,000,000 g, and the working frequency range is between DC and 2.5 MHz. It is thus suitable for both high-frequency measurements in microsystems engineering as well as for structural dynamics investigations with large vibration amplitudes, e.g. in the automotive industry.

Pos.	Full Scale Output (Peak)	Typical Resolution*	Signal Frequency Range	Max. Acceleration
	m/s	$\mu\text{m s}^{-1} / \sqrt{\text{Hz}}$	kHz	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	1,000	320,000
7	1	0.26	1,500	960,000
8	2	0.35	2,500	3,200,000
9	5	0.37	2,500	8,000,000
10	8	0.37	2,500	12,800,000
11	10	0.38	2,500	16,000,000

* 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} .

