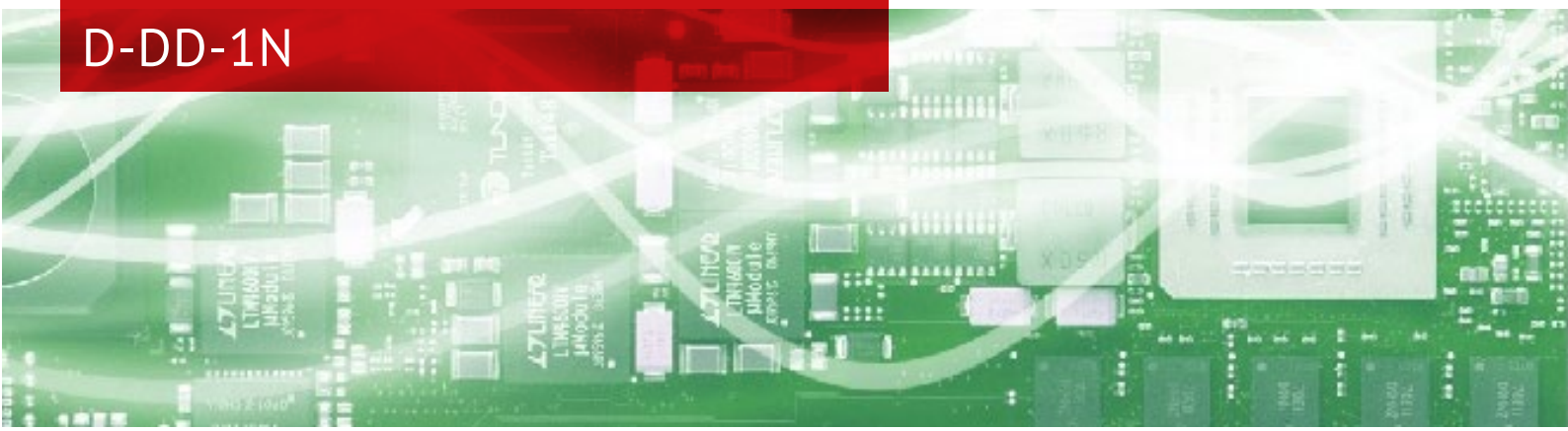
optomet.
LASER VIBROMETRY

Digital Displacement Decoder

D-DD-1N



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
- 19 displacement measuring ranges
- Frequency range: DC bis 500 kHz
- Max. velocity up to 5 m/s
- Resolution[*1] down to 50 femtometers

Universal Basis Displacement Decoder

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

The D-DD-1N displacement decoder is a versatile solution for various applications in noncontact vibration measurement. It features 19 displacement measuring ranges and can measure up to 500 kHz with a maximum velocity of the measured object of 5 m/s. Digital signal processing provides excellent linearity and measuring accuracy.
Required velocity decoder: D-VD-1N

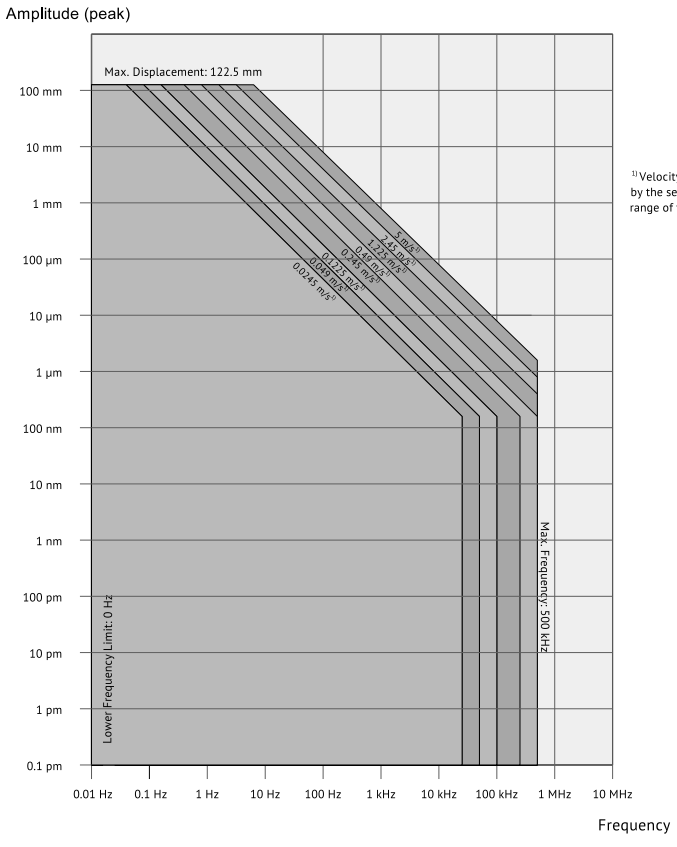
[*1] The resolution is defined as the signal amplitude (rms) that produces 0 dB signal/noise ratio with 1 Hz spectral resolution at 50 % fmax.

Technical data

Pos.	Full Scale Output peak to peak µm	Signal Frequency Range kHz	Max. Velocity m/s
1	0.245	0 ... 500*2	5
2	0.49	0 ... 500*2	5
3	0.98	0 ... 500*2	5
4	2.45	0 ... 500*2	5
5	4.9	0 ... 500*2	5
6	9.8	0 ... 500*2	5
7	24.5	0 ... 500*2	5
8	49	0 ... 500*2	5
9	98	0 ... 500*2	5
10	245	0 ... 500*2	5
11	490	0 ... 500*2	5
12	980	0 ... 500*2	5
13	2,450	0 ... 500*2	5
14	4,900	0 ... 500*2	5
15	9,800	0 ... 500*2	5
16	24,500	0 ... 500*2	5
17	49,000	0 ... 500*2	5
18	98,000	0 ... 500*2	5
19	245,000	0 ... 500*2	5

*2 In Scan-Mode: max. frequency 80 kHz

Range diagram



[1] Velocity limit is determined by the selected measurement range of the velocity decoder.