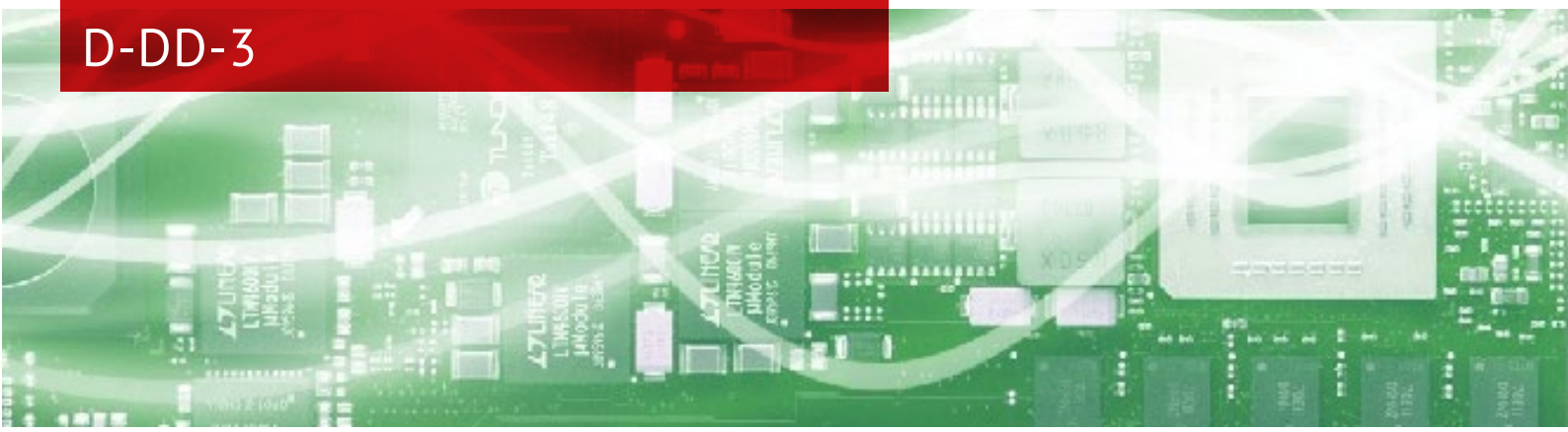
optomet.
LASER VIBROMETRY

Digital Displacement Decoder
D-DD-3



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 2.5 MHz
- Max. velocity up to 10 m/s
- Resolution down to 50 femtometers

High-Speed Displacement Decoder

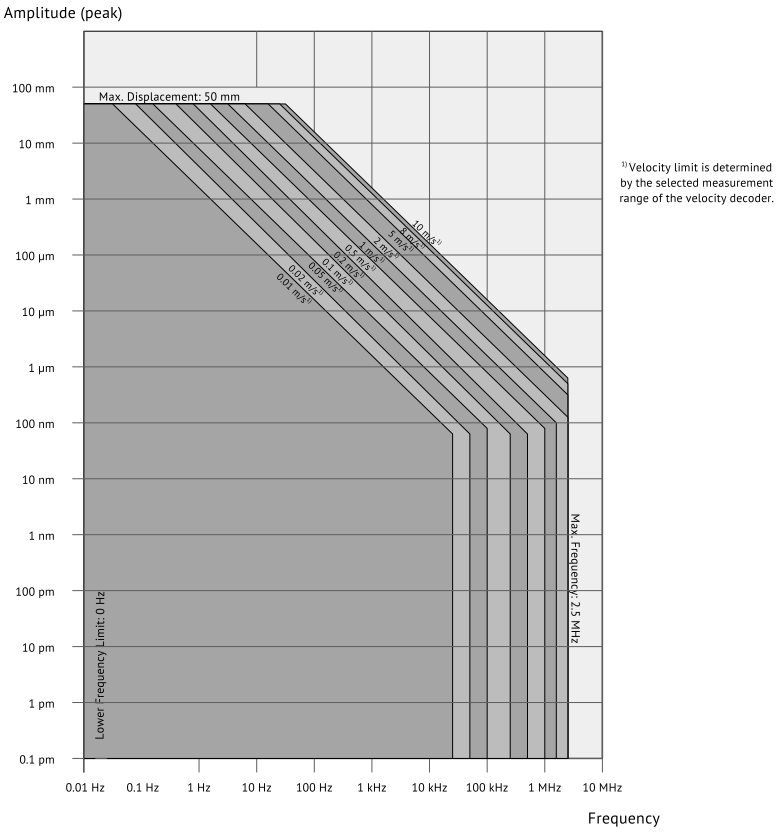
All vibrometers series feature by default a velocity decoder and can be supplemented with a suitable displacement and/or acceleration decoder.

The D-DD-3 displacement decoder can measure displacements of objects with a very high velocity (up to 10 m/s). The maximum permissible acceleration is 3,200,000 g and the frequency range is between DC and 2.5 MHz.
Required velocity decoder: D-VD-3

Technical data

Pos.	Full Scale Output (Peak to peak) µm	Signal Frequency Range kHz	Max. Velocity m/s
1	0.1	0 ... 2,500	10
2	0.2	0 ... 2,500	10
3	0.4	0 ... 2,500	10
4	1	0 ... 2,500	10
5	2	0 ... 2,500	10
6	4	0 ... 2,500	10
7	10	0 ... 2,500	10
8	20	0 ... 2,500	10
9	40	0 ... 2,500	10
10	100	0 ... 2,500	10
11	200	0 ... 2,500	10
12	400	0 ... 2,500	10
13	1,000	0 ... 2,500	10
14	2,000	0 ... 2,500	10
15	4,000	0 ... 2,500	10
16	10,000	0 ... 2,500	10
17	20,000	0 ... 2,500	10
18	40,000	0 ... 2,500	10
19	100,000	0 ... 2,500	10

Range diagram



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