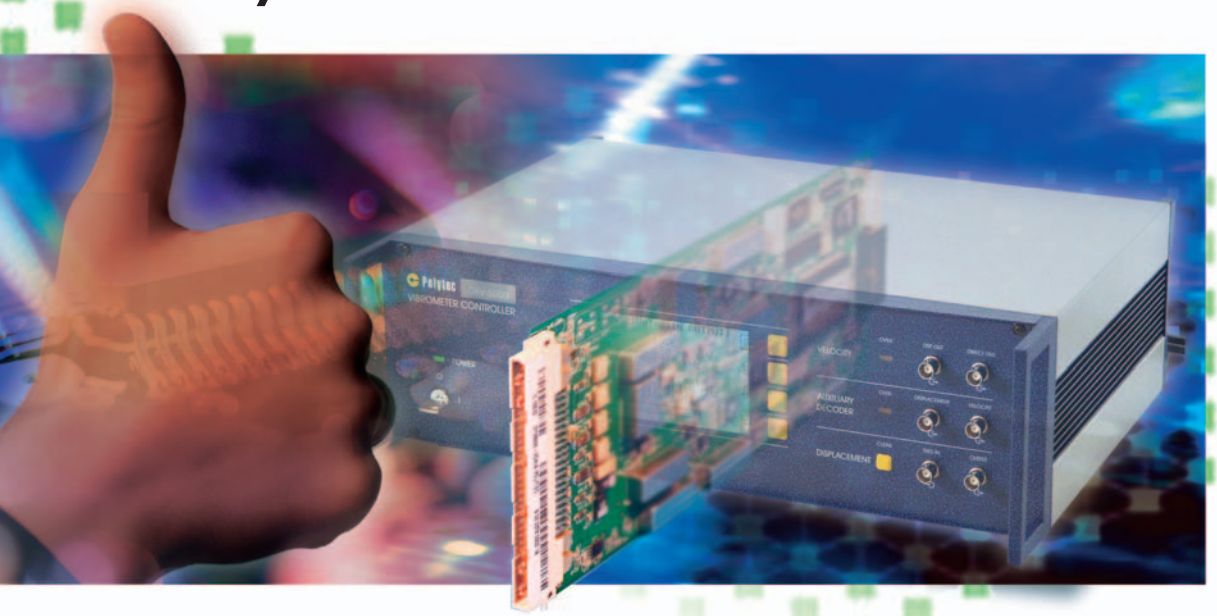
VD/DD *Decoder Guidelines*



MODULAR VIBROMETER SYSTEM

- OFV-5000 Vibrometer Controller
  - Velocity Decoders
  - Displacement Decoders
- OFV-505/503 Standard Sensors
- OFV-511/512 Fiber-Optic Sensors

DECODER SELECTION & COMBINATION

By selecting from a choice of different analog and/or digital decoders, performance of the OFV-5000 Vibrometer Controller can be precisely tailored to match the demands of the application. Up to four decoders can be installed simultaneously to obtain the greatest possible flexibility. This flexibility also allows subsequent add-ons and modifications to meet future needs.

Decoder Selection

The OFV-5000 controller is designed to accept a choice of signal processing modules, each optimized for different frequency, velocity or displacement performance.
Various analog and/or digital decoder options seamlessly cover the entire velocity range up to ± 10 m/s, displacements from picometers to meters, and frequencies from DC to 20 MHz.

The following table lists the basic features of the velocity decoders available for the OFV-5000. Displacement decoders and recommended decoder combinations are described on the reverse side.
For more information please see separate data sheets for the respective decoders and the OFV-5000 vibrometer controller.

Available Velocity Decoders

Decoder	Description	No. of Ranges	Best Resolution	Max. Velocity	Upper Freq. Limit
VD-01	High linearity velocity decoder	5	0.10 µm/s	10 m/s	50 kHz
VD-02	Wide-bandwidth velocity decoder	4	0.15 µm/s	10 m/s	1.5 MHz
VD-04	Mid-frequency velocity decoder (required for DD-400)	3	0.20 µm/s	10 m/s	250 kHz
VD-05*	10 MHz velocity decoder for ultrasonics	2	**	5 m/s	10 MHz
VD-06***	Digital high-precision velocity decoder	3	0.05 µm/s	0.5 m/s	50 kHz

* in preparation ** to be determined *** Adaptive filter module LF-02 recommended

Available Displacement Decoders

Decoder	Description	No. of Ranges	Best Resolution	Full Scale Output	Frequency Range
DD-100	Basic displacement decoder (requires any velocity decoder)	8	80 nm	± 82 mm	0 Hz – 250 kHz
DD-200	High-resolution displacement decoder (requires any velocity decoder)	13	2 nm	± 82 mm	0 Hz – 250 kHz
DD-300	20 MHz displacement decoder for ultrasonics (requires any velocity decoder)	2	0.1 pm	± 75 nm	50 kHz – 20 MHz
DD-400	Integrating displacement decoder (requires VD-04)	3	**	**	20 Hz – 250 kHz
DD-500*	Digital high-end displacement decoder (requires VD-06)	16	15 pm	± 50 mm	0 Hz – 350 kHz
DD-600*	I&Q converter for data processing with VibSoft VDD				

* in preparation ** to be determined

Decoder Combination

The OFV-5000 controller has four internal slots to accept up to four different signal decoders, depending on the desired measurement ranges. Two are specifically designated for velocity decoders and one is for the displacement decoder. An Auxiliary Slot is provided that can take either an optional velocity or displacement decoder.

The following table contains recommended decoder combinations for representative applications. More combinations adding further decoders are possible. If you have specific requirements, please contact Polytec's application and sales engineers who will help you select the appropriate decoders and VibSoft software.

Recommended Decoder Combinations		
VD-01	DD-200	Measurement of velocity and displacement up to 50 kHz vibration frequency. General applications, e.g. acoustics, mechanical and automotive engineering
VD-02	DD-200	Same as VD-01/DD-200, but vibration frequency range extended up to 1.5 MHz
VD-06*	DD-500	Digital, high-precision measurement of velocity and displacement at frequencies up to 350 kHz with velocity range limited to 0.5 m/s. Demanding applications e.g. acoustics, micro systems, precision mechanics
VD-02 + VD-06*	DD-500	Same as VD-06/DD-500, but vibration frequency range extended up to 1.5 MHz and velocity range extended up to 10 m/s
VD-02 + VD-05		Measurement of velocity at high frequencies up to 10 MHz. High-frequency applications, e.g. ultrasonics, micro systems
VD-02	DD-300	Acquisition of vibrations at frequencies up to 20 MHz. High-frequency applications, e.g. ultrasonics, micro systems
VD-04	DD-400	Special solution for measurement of small displacements at very high velocities. Applications: monofrequent ultrasonic tools and processing, e.g. wirebonding, ultrasonic welding

* Adaptive filter module LF-02 recommended

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