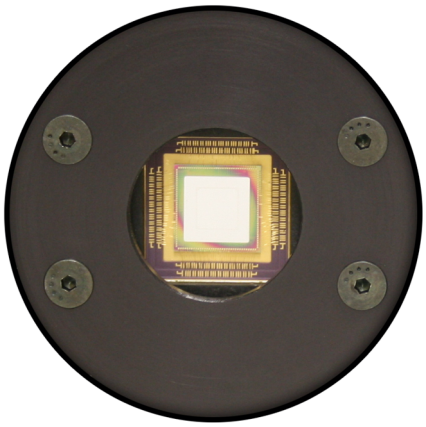


The *Multi*-DM: A versatile, robust deformable mirror system for advanced wavefront control

The popular *Multi*-DM offers sophisticated aberration compensation in an easy-to use package. With 140 precisely controlled elements and low inter-actuator coupling, this system is ideal for a broad range of applications including microscopy, retinal imaging, and laser beam shaping. The high speed, high precision drive electronics are easily controlled via USB interface. The DM is available in both continuous and segmented surfaces for adaptive optics or spatial light modulator applications. The DMs are capable of up to 5.5 µm stroke, 20 kHz frame rate, have sub-nm step size, and zero hysteresis. Higher speed electronics are available.

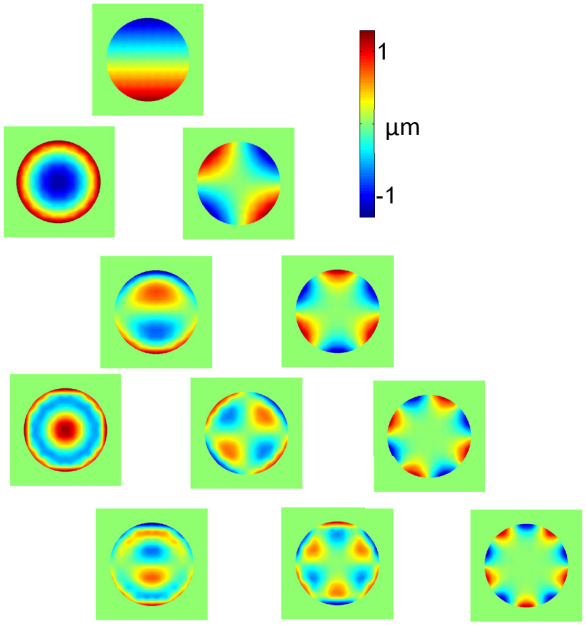
DM Specifications

- 140 actuators (12x12 array w/out 4 corners)
- Coating: Aluminum, Gold or Protected Silver
- Protective window with AR coating
- Zero hysteresis
- Sub-nm average step size
- Fill Factor >99% (DM), 98% (SLM)
- Surface Finish: <30nm RMS

Driver Specifications

- USB 2.0 Interface
- 100-240V AC Input
- 14 bit step resolution
- Max. Frame Rate: 8 kHz with 34 kHz burst
- Dimensions: 9" x 7" x 2.5"

Demonstrated High Order Aberration Correction



Measured Zernikes - 140 actuators with low interactuator coupling create high order Zernike modes

DM Selection Chart

	Multi-1.5	*Multi-3.5*	*Multi-5.5*	*Multi-SLM*
Stroke	1.5 µm	3.5 µm	5.5 µm	1.5 µm
Aperture	3.3 mm	4.4 mm	4.95 mm	3.6 mm
Pitch	300 µm	400 µm	450 µm	300 µm
Mechanical Response (10% -90%)	<20 µs	<100 µs	<500 µs	<40 µs
Approx. Interactuator Coupling	15%	13%	22%	0%
Price*	$15,000	$17,500	Upon Request	Upon Request

*Includes Mirror, Driver and Operational Software

The *Mini*-DM: An economical solution for wavefront correction.

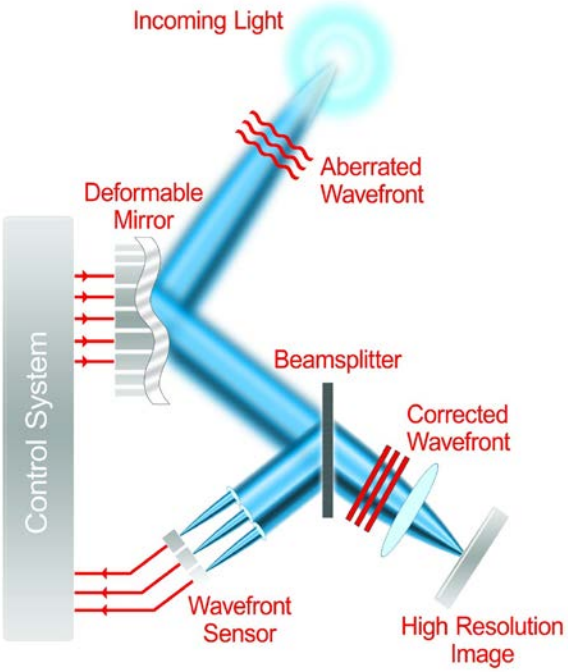
The *Mini*-DM is ideal for laboratory-scale adaptive optics and low order wavefront control. Its mirror surface is controlled by up to 32 electrostatic actuators which are individually commanded to achieve a desired shape. The DM is available with a continuous surface for adaptive optics applications. The DMs are capable of up to 5.5 µm stroke, 100 kHz frame rate, have sub-nm step size, and zero hysteresis.

DM Specifications

- 32 actuators (6x6 array without 4 corners) or 25 actuators (5x5 array)
- Coating: Aluminum, Gold or Protected Silver
- Protective window with AR coating
- Zero hysteresis
- Sub-nm average step size
- Fill Factor >99%
- Surface Finish: <30nm RMS

Driver Specifications

- Powered & Controlled by USB 2.0 Interface
- 14 bit step resolution
- Frame Rate: 8 kHz with 34 kHz burst (100kHz frame rate electronics available)
- Dimensions: 4" x 5.25" x 1.25"



DM Selection Chart

	Mini-1.5	*Mini-3.5*	*Mini-5.5*	*Ultra-Compact Mini-1.5*
Actuator Count	32	32	32	25
Stroke	1.5 µm	3.5 µm	5.5 µm	1.5 µm
Aperture	1.5 mm	2.0 mm	2.25 mm	1.2 mm
Pitch	300 µm	400 µm	450 µm	300 µm
Mechanical Response (10% -90%)	<20 µs	<100 µs	<500 µs	<20 µs
Approx. Interactuator Coupling	15%	13%	22%	15%
Price*	$5,000	$7,500	$12,500	$7,000

*Includes Mirror, Driver and Operational Software