

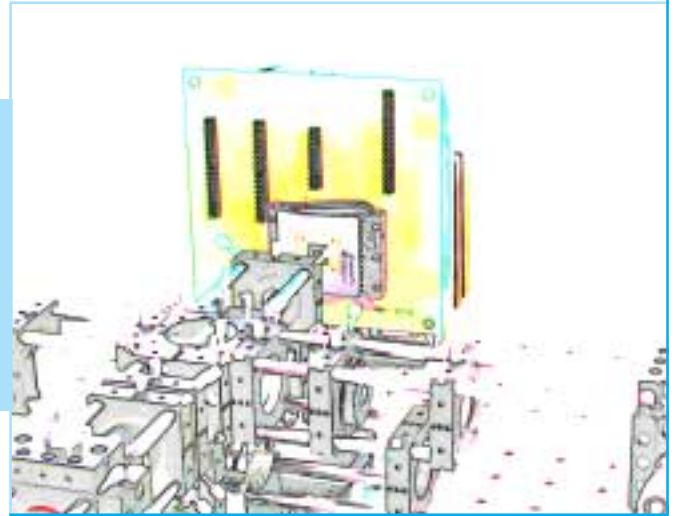


μ SLM

Micro Spatial Light Modulators

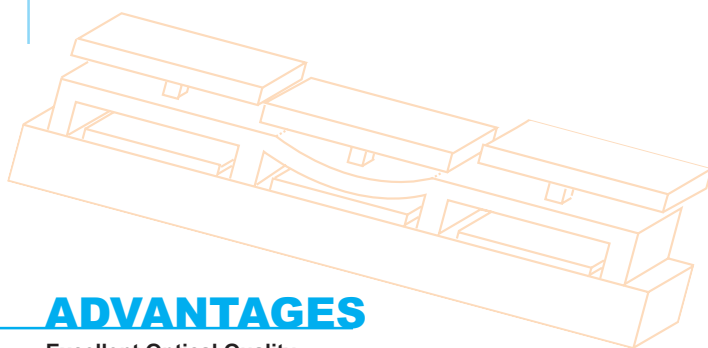
Boston Micromachines supplies and develops fast, compact, low cost, and highly reflective micro spatial light modulators (μ SLM) using MEMS technology. The primary function of an SLM is to alter the phase of reflected light, which can be accomplished by deflecting individual mirror pixels. Applications of SLM include optical information processing, high definition displays, and optical correlation.

Our MEMS technology SLMs feature 7kHz frame rates, high fill factor (>98%), and no polarization effects.



STRUCTURE

The BMC μ SLM is a fast, compact, and reliable product with excellent optical quality. It consists of an array of electrostatic parallel-plate actuators that are directly coupled to square mirror pixels through mechanical attachment posts. The device is fabricated using a three layer, polysilicon, surface micromachining process.



ADVANTAGES

Excellent Optical Quality

- 4 nm RMS per pixel
- Highly reflective metallic coating in aluminum or gold

Precise Mechanics

- No hysteresis
- 2 μ m stroke
- 4 nm repeatability
- 7 kHz bandwidth

Reliable Electronics

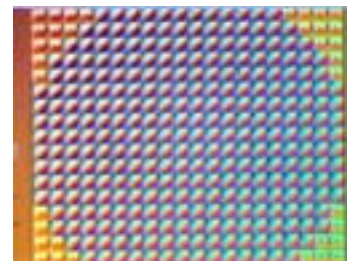
- 140 – 1024 electrostatic actuators
- Device lifetime >500 M cycles at 1/2 full stroke
- Low power consumption
- PC based

PRODUCTS

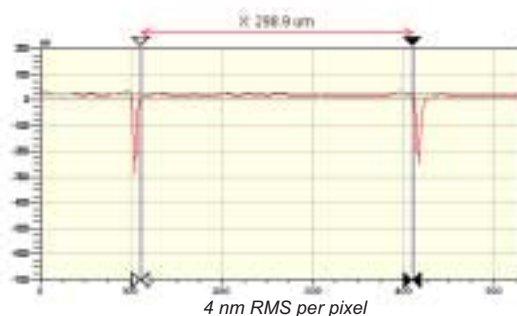
μ SLM140 140 Pixels, 3.3 mm Square Aperture

μ SLM400 400 Pixels, 6 mm Square Aperture

μ SLM1024 1024 Pixels, 10 mm Square Aperture

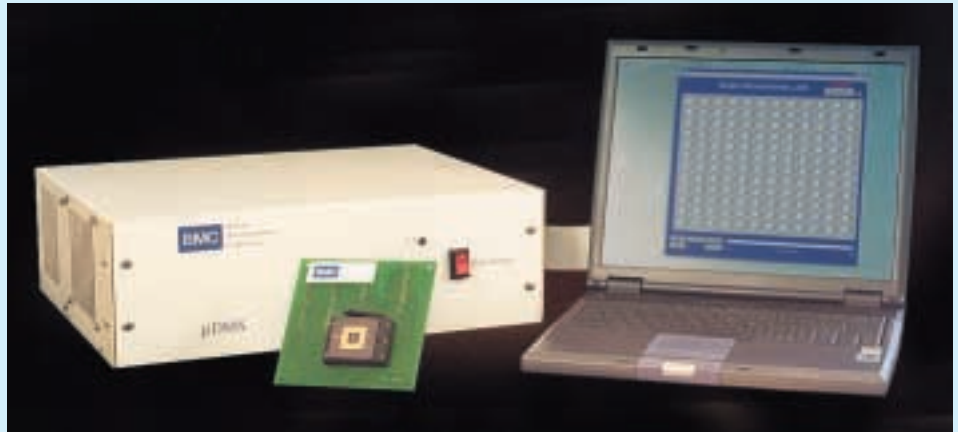


Microscopic view of μ SLM400



SYSTEM SPECIFICATIONS

The BMC μ DM System consists of a 140 channel HV Driver, PC controller, μ Drive™ software, mirror mount, and μ DM.



HV DRIVER

Modular 19" Rack mountable chassis
140 Channel per box
110 V, 60 Hz, 3 Amp

PC CONTROLLER

Windows® NT compatible
Integrated array driver and test software
(μ Drive™)

MIRROR ASSEMBLY

Pin grid array packaged
Zif socket mounted on a PCB

APPLICATIONS

Maskless Optical Direct Writing

Projection Displays

Active Optics

Optical Correlation

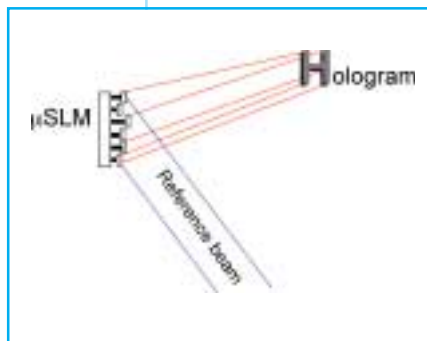
Pattern/Face Recognition

Identification Systems

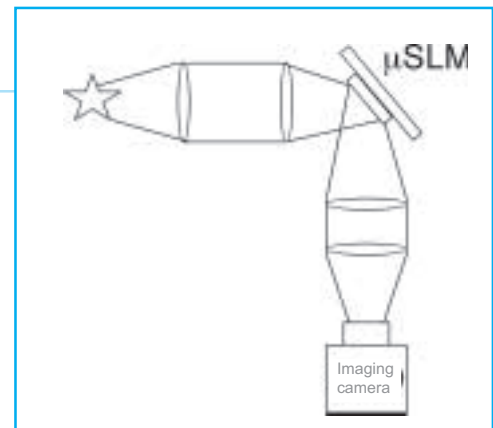
Machine Vision

Long Range Laser Communication

Holographic Encryption



Holographic encryption on a μ SLM regenerates a 3D projection using a previously recorded interference pattern of an image and a reference beam.



Optical correlator: μ SLM used to compare the speckle image of objects.