
Spatial Light Modulator

FEATURES

Transmissive liquid-crystal *Spatial Light Modulator*

- Pixel pitch 8.5 μm
- Full HD resolution, 1920 $\times$ 1080 pixels
- Transmission mode
- Phase or amplitude modulation
- Response time 15 ms
- Dimensions 152 mm $\times$ 123 mm $\times$ 30 mm
- Mounts for 1" and 2" optics
- Designed for optical cascading
- Custom-developed electronics
- Control software for Linux, Windows, macOS
- Affordable

DESCRIPTION

The SLM-H06 works in transmission: the light beam passes through the liquid-crystal panel, so the modulator is simply inserted in line in the optical path, without any beam splitter or folded geometry.

For phase modulation the SLM-H06 contains no polarizer: the input light only has to be linearly polarized at 45° to the panel edges (along the liquid-crystal optic axis), which is left to the user. For amplitude modulation, polarizers are added.

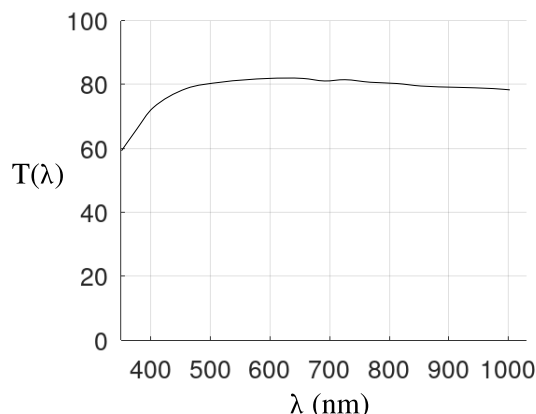
It is mounted in an aluminum housing that includes the driver card. The user does not have to handle any flat cable.

Two circular apertures, located on either side of the panel, allow additional light beams to pass alongside the modulated beam (e.g. in interferometric or holographic setups).



Mounts for 1" or 2" optics are provided on both the front and the rear side of the housing.

Spectral transmission of the SLM-H06, measured without polarizers, for linearly polarized input light.

**APPLICATIONS**

- Reconfigurable phase/intensity masks
- Microscopy
- Holography and interferometry
- Lithography and material processing
- Optical sensing
- Adaptive optics
- Biomedical imaging
- Quantum optics
- Optical neural systems and complex optics
- Education

Imaging, polarization control, coupling with cascaded optical elements or cascading several SLMs can easily be implemented by fitting the desired optics to the dedicated mounts of the SLM-H06.

Examples

- Fourier filter
- Fresnel lens
- Bessel and Airy beams
- Vortex generation
- Computer-generated holograms
- Light projection
- Optical tweezers

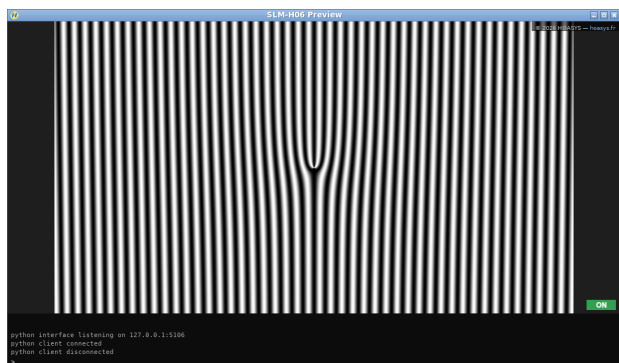
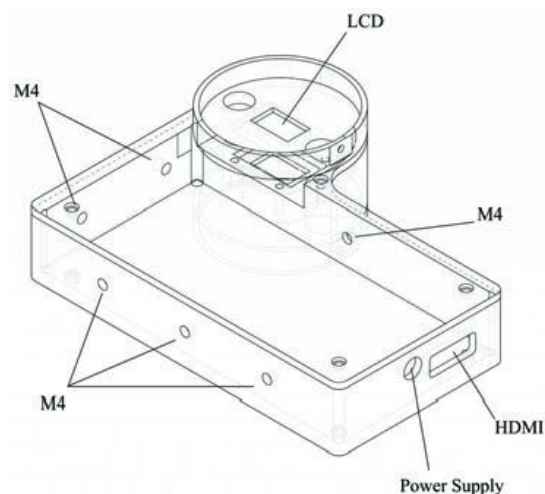
CONNECTION AND SOFTWARE

An HDMI port is used for communication: the computer sees the SLM-H06 as a second monitor.

The dedicated control software displays images, videos or live frames computed in Python on the SLM-H06.

Spatial Light Modulator**CONTROL SOFTWARE**

Reconfigurable phase or intensity masks are displayed from a live preview window with a built-in command console (zoom, rotation, shift, gain, regions of interest), or pushed in real time from Python. The factory gray-level calibration is applied automatically.

**MECHANICAL DRAWING****VIEWS****CHARACTERISTICS**

Item	SLM-H06
Panel resolution	1920 × 1080 (Full HD)
Operating mode	Transmission
Liquid crystal	VA mode
Operating wavelength range	400 – 1050 nm
Panel active area	16.32 mm × 9.18 mm
Pixel pitch	8.5 μm
Aspect ratio	16:9
Phase / retardance range	π at 510 nm
Optic axis	45°
Frame rate	60 Hz
Response time	15 ms
Bit depth	8 bit (gray levels 0 – 255)
LIDT (phase modulation)	0.1 J/cm ² (10 ns, 10 Hz)
PC connection	HDMI
Power supply	19 – 24 V DC
Dimensions	152 mm × 123 mm × 30 mm
Weight	474 g