
Liquid Crystal Addressing Light Projector – LC-PROJ

FEATURES

Spatially shaped and reconfigurable light source (LED or laser diode).

Intensity modulation provided by an integrated liquid-crystal spatial light modulator (SLM).

Optical power and wavelength customizable depending on the application.

Working distance customizable from a few centimetres to infinity.

Common properties

- Output spot size 35 mm
- Spatial resolution 25 μm
- Linearly polarized output
- Response time 15 ms
- Dimensions 156 mm $\times$ 100 mm $\times$ 95 mm
- Weight 1.57 kg
- Power supply 19 – 24 V DC

DESCRIPTION

LC-PROJ is a reconfigurable light projector specifically developed for the needs of shaped-light applications and, in general, lighting applications.

The output light is amplitude modulated by an integrated liquid-crystal spatial light modulator, which gives real grey levels of the light intensity.

The output light spot is arbitrarily shaped on its transverse section and has a diameter of 35 mm, with 1080 pixels over it.

The output light is linearly polarized. Phase modulation is also available on demand.

The case is made of anodized aluminum, with an ergonomic form that facilitates orienting and positioning the light source.

An HDMI port is used for communication: the computer sees the LC-PROJ as a second monitor. The included control software (Linux, Windows, macOS) displays images, videos or live frames computed in Python on the LC-PROJ.

APPLICATIONS

- Photo-addressing
- Photo-polymerization, photo-bleaching
- Lithography and material processing
- Microscopy
- Interferometry
- Biomedical imaging
- Optical neural systems and complex optics
- Education

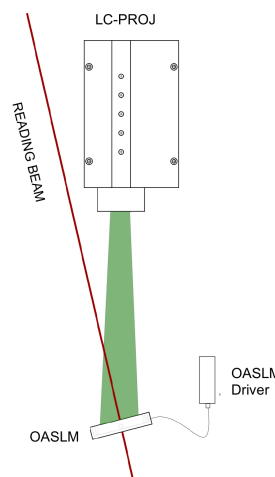
Photo-addressing can easily be implemented by using the LC-PROJ with the desired optical wavelength and power.

Examples

- Computer-generated holograms
- Light projection
- Optical tweezers
- Addressing of OASLM

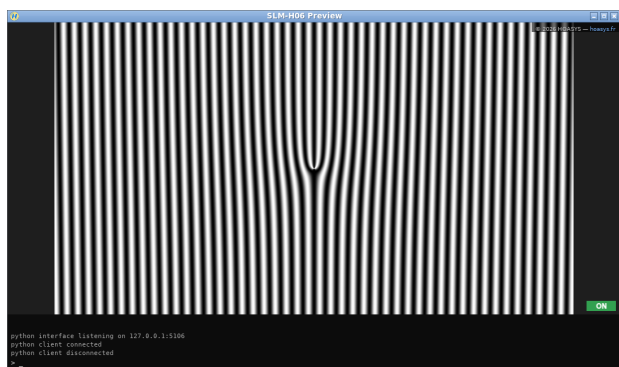
OASLM addressing

LC-PROJ is specifically adapted for providing reconfigurable intensity masks to an Optically Addressed SLM: the projected pattern is the writing light of the OASLM, while the reading beam can be at a different wavelength.

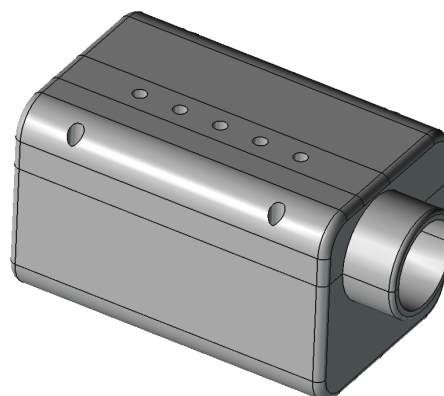


Liquid Crystal Addressing Light Projector – LC-PROJ**CONTROL SOFTWARE**

Reconfigurable 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.

**MECHANICAL DRAWING**

Power supply (19 – 24 V DC)
HDMI port

**VIEWS****CHARACTERISTICS**

Item	LC-PROJ
SLM panel resolution	1920 × 1080 (Full HD)
Pixel pitch	8.5 μm
Frame rate	60 Hz
Response time	15 ms
Bit depth	8 bit (gray levels 0 – 255)
Light source	LED or laser diode, wavelength on request (blue LED, 470 nm, in the OASLM kit)
Output	Spot of 35 mm, linearly polarized
Spatial resolution	25 μm
PC connection	HDMI
Power supply	19 – 24 V DC
Dimensions	156 mm × 100 mm × 95 mm
Weight	1.57 kg