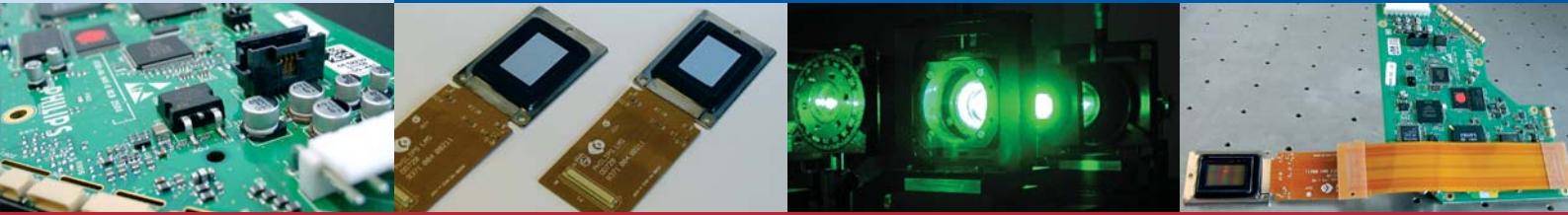


LC-R 720

>> Spatial Light Modulators



Spatial Light Modulators

HOLOEYE's Spatial Light Modulator (SLM) systems are based on liquid crystal microdisplays. These devices can modulate light spatially in amplitude and phase, so they act as a dynamic optical element. The optical function or information to be displayed can be taken directly from the optic design or an image source and can be transferred by a computer interface. Implementation is very easy due to the smart system architecture and by addressing VGA or DVI signals directly from a computer graphics card.

LC-R 720

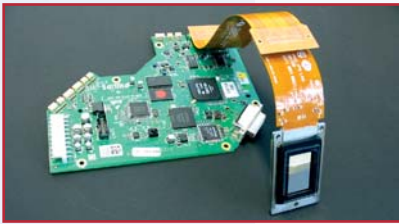
The LC-R 720 is an easy-to-use Spatial Light Modulator system based on a reflective LCOS microdisplay designed for prototyping in industrial development and research. It can be used to modulate light spatially in amplitude and phase, where the electro optical modulation function can be modified by a computer using a MS Windows software. The LC-R 720 supports DVI-signals with a resolution of 1280 x 768 pixels. High light efficiency due to the reflective LCOS display and phase only modulation guarantee excellent optical performance.



Due to the high image frame rate of 180 HZ and the short response time of 3 ms the highest potential of the LC-R 720 is the use at high speed applications. Besides imaging and projection applications particular laser applications, such as diffractive optics, Bio-photonics and medical laser applications to material processing, where strong laser pulses can be shaped by applied phase modulation are the main applications and challenges for this SLMs.



Pioneers in Photonic Technology



Applications

- + Display Applications
- + Imaging & Projection
- + Beam Splitting
- + Fringe Projection
- + Laser Beam Shaping
- + Optical Tweezers
- + Digital Holography
- + Laser Pulse Modulation

The LC-R 720 can be plugged directly to a computer graphics card by the DVI interface. Live addressing with the frame rate of the graphic card and the function as a MS Windows desktop is one reason why this spatial light modulator is so comfortable to use. The device is controlled by a HOLOEYE driver software, which is delivered with the kit, that runs on all Windows platforms. This software gives the opportunity of controlling all relevant image parameters and provides a very easy gamma control to configure the modulator for different applications. Furthermore a tailored SLM application software allows the simple generation of diverse dynamic optical functions like gratings, lenses, axicons and apertures as well as the calculation of diffractive optical elements (DOE) from user defined images. The good phase modulation properties, the high resolution, good fill factor caused by the reflective architecture of the display and the high light efficiency makes the system suitable as a dynamic diffractive element. To guarantee the best performance, optical characterization measurements (e.g. phase modulation) for each device are performed by HOLOEYE for each individual device.

Main Features:

LCoS Microdisplay (Reflective)
 WXGA Resolution (1280 x 768 Pixels)
 Up to 180 Hz Image Frame Rate
 Full Developers Kit (easy to run using a standard PC)
 Microsoft Windows Driver Software
 Application Software



Display Features:

Pixels: 1280 x 768
 Pixel Pitch: 20 μm
 Fill Factor: 92%
 Response Time: < 3 ms
 Addressing: 8 Bit
 Signal Format: DVI - WXGA Resolution
 Trigger Sync



Special Optical Features:

Amplitude or Phase Modulation
 Above 1π Phase Shift in the Visible
 Intensity Ratio of 1000:1 @ Typical
 Phase Only Modulation Mode
 High Light Efficiency (Diffraction Efficiency up to 60 %)



Software Features:

Driver: Brightness / Contrast / Geometry / Gamma Control
 Application: Basic DOE computations; Generation of optical functions (Circular Aperture, Fresnel Zone Lens, Axicon, Single and Double Slit ...); Gratings (incl. Blazed and Sinusoidal)

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